FLORIDA KEYS MARINE SANCTUARY ACT

HEARING

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY
AND GREAT LAKES

AND THE

SUBCOMMITTEE ON FISHERIES AND WILDLIFE
CONSERVATION AND THE ENVIRONMENT

OF THE

COMMITTEE ON
MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

H.R. 3719

TO ESTABLISH THE FLORIDA KEYS NATIONAL MARINE SANCTUARY, AND FOR OTHER PURPOSES

MAY 10, 1990

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FLORIDA KEYS MARINE SANCTUARY ACT OF 1990

THURSDAY, MAY 10, 1990

U.S. HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON OCEANOGRAPHY AND GREAT LAKES, AND THE SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT, COMMITTEE ON MERCHANT MARINE AND FISHERIES,

Washington, DC.

The subcommittees met, pursuant to call, at 2 p.m., in Room 1334, Longworth House Office Building, Hon. Dennis M. Hertel (Chairman of the Subcommittee on Oceangraphy and Great Lakes) presiding.

Members present: Representatives Hertel, Studds, Hochbrueckner, and Goss.

Staff present: Bill Ashworth, Professional Staff; Brian O'Malley, Counsel; Ray O'Malley, Counsel; Judy Wells, Professional Staff; Lawrence G. Flick, Minority Professional Staff; Joan Bondareff, Counsel; Lisa Pittman, Minority Counsel; Jeff Pike, Professional Staff; Lee Crockett, Professional Staff; Thomas O. Melius, Minority Professional Staff; Bill Woodward, Staff Director, Fish and Wildlife Subcommittee; and Peter Marx, Minority Professional Staff.

OPENING STATEMENT OF HON. DENNIS M. HERTEL, A U.S. REPRESENTATIVE FROM MICHIGAN, AND CHAIRMAN, SUBCOMMITTEE ON OCEANOGRAPHY AND GREAT LAKES

Mr. HERTEL. Good afternoon.

Today our subcommittees meet jointly to discuss H.R. 3719, the "Florida Keys Marine Sanctuary Act of 1990."

Last fall, three separate tanker groundings were reported along the coral reef of Florida within a three-week period. These incidents brought to light the need for action to be taken to protect the Florida Keys coral reefs, and the fragile ecosystem which it sustains.

H.R. 3719 would create a unified Florida Keys National Marine Sanctuary, by including all areas of the Keys from the northeasternmost boundary of the Key Largo Marine Sanctuary, to the westernmost boundary of the Fort Jefferson National Monument in the Dry Tortugas.

While we review this legislation, we must also keep in mind that the Keys sustain a number of industries such as commercial fishing, which largely contribute to the economy of the area.

Our task is to balance environmental concerns with practical economic ones, to insure that while we are protecting the coral reef, we are not endangering jobs and trades which have been thriving in the keys for generations.

Mr. HERTEL. Are there any other opening statements?

OPENING STATEMENT OF HON. GERRY E. STUDDS, A U.S. REPRESENTATIVE FROM MASSACHUSETTS, AND CHAIRMAN, SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT

Mr. STUDDS. Thank you.

For almost 20 years the Marine Sanctuaries Program has played an important role in our effort to preserve our coastal environment. Each of our existing sanctuaries is unique; and each has—to one extent or another—been successful in preserving marine resources of great value not only to particular state or region, but to our Nation, as well.

The Florida Keys and especially the Florida Keys Coral Reef is just such a resource. It is a national treasure almost as beautiful and almost as valuable as the shoreline of Cape Cod.

I think that is an overstatement, frankly, but the staff got carried away. It must be protected.

I fully support the goals of this legislation; and I have enormous respect for its sponsor. But although I approach the bill sympathetically, I do so, as well, with two basic questions in mind.

First, I wonder whether it is wise, as H.R. 3719 proposes, to bypass the consultation procedures contained in the Marine Protection, Research and Sanctuaries Act.

The very name, "Marine Sanctuary," sounds simple and appealing. But, as we can see from some of the testimony today, sanctuary designations can raise hopes and arouse fears out of proportion to the actual impacts of the program itself.

The law was designed to resolve conflicts, not create them, and there are pro edures in the law that would help us do so. Why not use them?

Second, I understand that the primary goal of this bill is to protect the fragile ecology of the coral reef. Coral does not take kindly to getting rammed by a tanker.

Limiting commercial vessel traffic makes sense. Creating an "International area to be avoided," as we did for Nantucket Shoals more than a decade ago, makes sense.

But if protecting the coral is the primary goal, we would also understand that a sanctuary designation is not enough. As several of our witnesses today point out, it is pollution that is killing the reef, not just freighters—pollution from agricultural runoff and residential and commercial development.

So as we discuss this legislation today, I hope Members will bear in mind the existence of other bills, as well; including the Coastal Defense Initiative and the Coastal Barrier Resources Act. Taken together, or in some combination, these bills could provide comprehensive protection for the keys.

In closing, let me once again welcome the gentlemen from Florida, and express my hope that we can work together closely in the weeks ahead on this and related bills.

Mr. HERTEL. Thank you.

It is my great pleasure and honor to have Congressman Fascell, Chairman of the Foreign Affairs Committee in the House, and Senator Graham, here on our first panel.

They have done so much for the State of Florida.

We very much appreciate their leadership in this area, as well.

I recognize Congressman Fascell for an introduction.

STATEMENT OF HON. DANTE B. FASCELL, A U.S. REPRESENTATIVE FROM FLORIDA

Mr. FASCELL. Thank you.

I am pleased to present my distinguished colleague from the U.S. Senate, not only a dear friend, a former Governor of Florida who has been, for as long as I have known him, involved in providing great leadership on all the environmental questions not only in Florida, but nationwide.

I was pleased to hear both of you Chairmen recognize at the outset the particular place of Florida's environmental sensitivity in the course of matters. I doubt that there is another state in the Union that has the same kinds of problems that affect both its environment and its people.

The Senator lived with that all through the time he was governor. Now he has continued his leadership in the Congress. I am pleased that he has joined us not only here, but also in the efforts to do what is right in trying to preserve Florida both environmentally and for its growth.

Mr. HERTEL. Senator Graham?

STATEMENT OF HON. BOB GRAHAM, A U.S. SENATOR FROM FLORIDA

Senator GRAHAM. Thank you.

I wish to digress for a minute to say how much I appreciate that warm introduction. It was 31 years ago this summer that I was a Congressional intern in the office of a young Congressman from Florida, Dante Fascell. That experience helped peak my interest in government and services particularly here in Washington.

For that as well as a lifetime of generous friendship, I am eternally indebted to Congressman Fascell and his wonderful wife and family that supports him so ably here in Washington.

Mr. Chairman, and distinguished Members of the subcommittees, I thank you for the opportunity to comment today on the proposed Florida Keys National Marine Sanctuary and Protection Act.

My friend and colleague, Congressman Fascell, is the author of this idea and has been the driving force for its implementation. Congressman Fascell has represented the people of Monroe County for 34 years. His most recent proposal reflects his deep and genuine concern for the human and the natural resources of the Florida Keys.

Mr. Chairman, I am proud of the efforts which the State of Florida has made to protect its resources during the last several decades

of enormous growth. Florida recognized the importance of working with the Federal Government to develop comprehensive plans for conserving sensitive lands and water.

For example, the protection of the Everglades ecosystem has gone far beyond the simple mapping of the park boundaries and placement of a few Federal park officers. Protection of that unique system represents a joint Federal, state and local effort to protect endangered species, regulate water flow, to identify appropriate areas for agricultural use, provide facilities for recreation and research and support a fragile ecosystem rich with plant and animal life.

The coral reef tract along the coast of Florida is worthy of this same type of comprehensive management scheme.

A number of witnesses today will illustrate the fragile nature of the reef track and describe this unique ecosystem.

I would like to extend an invitation on behalf of Congressman Fascell and the Florida delegation for you to visit the Florida Keys and view the reef first-hand.

Only then will you be able to fully appreciate the depth of our concern.

I invite you to come to the Keys not just so you can see the reef, but so you can also witness the heavy flow of traffic on, around and above it.

You will realize why we argue for a marine sanctuary designation.

Congressman Fascell's bill was offered in response to a highly publicized grounding of large vessels, to which the Chairman has previously referred.

Congressman Fascell and I know these groundings are only a small part of the problem. Daily, this coral reef is exposed to various forms of abuse and misuse. Often unintentional.

Tourists on the water often anchor on the reef or bump against it unaware that both actions cause serious damage. Even a small scrape from a diver rubbing or standing on a reef can cause irreversible damage.

The National Marine Sanctuary Program is experienced in determining what sort of uses are compatible with the goals of resource protection.

I have been impressed with the work they have done in cooperation with the State of Florida in operating the already designated sanctuary areas at Looe Key and Key Largo.

What we need now is a Keys-wide education, research and enforcement plan to see that the entire coral reef track is protected without jeopardizing legitimate commercial and recreational activity.

This is the goal of the bill and goal of similar legislation which I have offered in the Senate.

I encourage you to act favorably on Congressman Fascell's bill and would be glad to answer any questions at the conclusion of his comments.

Mr. HERTEL. Thank you very much, Senator.

Now the author of H.R. 3719, Congressman Fascell.

Mr. FASCELL. Thank you.

First let me thank you for holding the hearings on this legislation and for other legislation which you are now considering, and assure you right at the outset that I am perfectly willing to discuss all legislation that the Committee is considering which directly, or indirectly, affects the Florida Keys or any other part of Florida.

We all have the same objectives.

We may have disagreements on how to achieve the objective, but I have no problem with discussions because they are absolutely necessary if we are going to make progress.

With respect to this one bill, let me just state, at the outset, that two things occurred.

One was the three ships that ran aground last year, two of which occurred in an already declared sanctuary. And the question was, how are you going to stop the groundings. The answer is you cannot.

But a sanctuary, at least, provides the possibility that you can collect some kind of fine and put that money back into the protection and restoration of that resource. That is one reason.

The other reason was that these particular events dramatized something that we have all known has been occurring for a long time, and that is the degradation of the entire reef.

When one considers that this is the last of the major unprotected ecosystems in the United States, it requires the best judgment we have from a local standpoint, a state standpoint and a Federal standpoint to be sure that we do the right thing.

There are many concerns that have been raised by all kinds of people with regard to the designation of a sanctuary, and they are legitimate. There are always certain restrictions that come with such a protection, simply by virtue of such a designation.

What I saw happening was that we all agree that something needs to be done, even the most abundant user.

We all agree we don't want the reef to die because not only is it an ecological marvel, but it is also essential to the economy of the Keys and South Florida. There are a lot of good reasons to make sure that the reef doesn't die, but what I saw was that we were doing this piecemeal. By we, I mean everybody—the country, the Congress, the departments, the state.

We had a state park; then we came along and we did a study on Looe Key; then we did a study on something else. I even had a bill for more studies for the possibility of the expansion of three sites.

You don't have to be a genius to see that this is not the right approach with respect to this reef. Now if you had isolated areas that were separate and there was some reason to make a distinction, you might want to do that.

But here, the reef is the reef and the problems are probably similar, if not the same. It is degradation of water quality and misuse that are damaging the reef. None of us know, and scientists disagree, and I hope they will testify here—I am sure they will—on how long you can keep doing this.

Therefore, I felt it was absolutely essential, and I am delighted that Senator Graham joined in on this, to bring this issue to a head and get everybody involved. It doesn't make any difference what business you are in or what conservation group you are in, but to get the issue to a head somewhere in this government so that we

can make a decision with respect to what we are going to do about this reef and not let it die because of a salami technique.

That is the whole purpose of the bill. Obviously, there are many adjustments that need to be made and there are going to be some good ideas which will be offered. There are legitimate concerns which will need to be satisfied. I have no doubt about that, but I think that everybody needs, and should be allowed, to get involved in this process some way.

I am also concerned, as some of the speakers after me will also state, with the proliferation of agencies with jurisdiction in the region. I know, and appreciate, that these committees here have struggled with this problem.

What I would like to suggest for your consideration is that you not necessarily formalize what is absolutely essential—an interagency working group among all the government agencies. But that you create an instrument that seems to have worked in other areas so an advisory council which can coordinate all the Federal agencies, all the state agencies, all the local agencies, and representatives of the public who have interests, commercial or otherwise, with respect to the management plan.

Senator Graham's bill provides 30 months for the development of an overall management plan with all kinds of opportunities for public input which, I believe is essential. I don't know whether it will take 30 months or 18 months, but we can leave that up to your judgment based on the testimony you hear. While the process is good, what we don't need is simply another regulatory body with limited jurisdiction.

If we are going to save this reef, and if it is going to provide both ecology and economically, it is going to take the combined efforts of all the agencies at all levels of government, including the people. Nothing is going to work unless the people support it.

So whatever we are going to do has to have that kind of an overall emphasis to it and I am sure this Committee can, in its wisdom, come up with that. There are many good suggestions already which I am willing to incorporate and I know many others will be making suggestions to the subcommittees today which I think ought to be considered very carefully.

One of the issues raised by commercial fishermen is why should there be another regulatory agency when the regional fishery management councils we have got are doing a very good job? That is a very fair question and I don't think that process ought to be overridden.

For example, here just lately, and I am sure my good friend who represents the commercial fishermen who is here, has already seen this. Scientists—big headline in the local paper—save snapper and grouper. That is an absolute shock to me as a person who has fished in the Florida Keys and around Miami all of my life. Snapper and groupers are one of the mainstays of fishing in the area.

I don't know what the amount of the take is in the Florida area, however, for them to come out and say that they are in danger of disappearing is an absolute shock. I can't tie this into the reef, but I know that you got plenty of habitat there, and the reef is important for snapper and grouper.

Whether it is water pollution or overfishing or whatever, the point is that this team of scientists wants to set aside ⅕ of the Federal waters off the Southeast United States as non-fishing zones where it would be illegal to even wet a line.

I can see sports fishermen and commercial fishermen going right up the flue as soon as they read this one.

They got three designated spots along the reefs. You don't have to have much of an imagination to see what the concerns are whether you are going out there getting tropical fish, whether you are a commercial fisherman, a sports fisherman, a boater, etc. . .

The Executive Director of the Organized Fishermen of Florida, Jerry Sansom, made the obvious statement. "All know that Red Snapper is in serious trouble. We are not adverse to doing whatever needs to be done to protect the resources so long as it is applied equally to everyone." That is just one concern expressed by commercial fishermen. There are many other concerns, and you will hear from them.

All I am saying, and I am citing this particular case, is there is good justification for saying the mechanisms that exist that people have confidence in ought to be used. The management plan that will eventually be developed together should, if this Committee goes along with the concept of this legislation, have the oversight responsibility to see that the coordinated work at the Federal, state, and local level is coordinated so it really does the job for us.

Suffice to say, gentlemen, we have a very serious problem. What we are trying to do here, as representatives of the people is the normal requirement of a balancing act between saving the environment and allowing people to use it properly. That is a tough, and difficult job.

We are managing slowly but I don't know that we the people are ahead of the curve yet in this country or in this case. When one looks at the rest of the world, you get totally frustrated by thinking of how much water is already dead. I remember testimony in this Committee when we tried to put together a consortium of all the academic institutions on the Gulf of the Coast of the United States because of the concern that the run-off and other factors had killed or are about to kill the Gulf of Mexico.

That was, gentlemen, 20 years ago, and as far as I know, nothing has been done except allowing people to drill for oil. Such drilling would really destroy us in Florida. I think we all agree, all of us, users and non-users and conservationists, that the last thing that would be beneficial to anybody would be if the Administration determines to go forward with drilling off the coast of Florida.

We have been waiting patiently for an announcement from the President, but it hasn't come yet. There are got bills, which I have co-sponsored, to prohibit drilling, de-authorize it to cancel the leases in the area, and we also have requests pending before Appropriations Committees to extend the moratorium to prevent the drilling. All I am saying is that if there is any way you can do it in this bill, you ought to do it in this bill.

Thank you very much.

[The prepared statement of Hon. Dante Fascell follows:]

PREPARED STATEMENT OF HON. DANTE FASCELL, A U.S. REPRESENTATIVE FROM FLORIDA

Mr. Chairmen, and Members of the subcommittees, I thank you for holding this hearing on the legislation I have introduced to protect the living coral reefs in the Florida Keys, the only such ecosystem in North America. Creating a unified Florida Keys National Marine Sanctuary would give this unique resource a designation comparable to its national significance. There are many people who, like me, have fished and swam in the Florida Keys for years who can tell you of other days when the water was cleaner and the fish were more abundant. Sadly, those days are gone forever.

When three commercial freighters ran aground on the coral reefs last year, all of the threats to the survival of the coral reefs were brought squarely into focus. These threats include vessel groundings, uneducated and careless use of the resource and poor water quality. We now have a golden opportunity to make something good come out of these groundings by taking positive action to save the precious resource that brings people to the Florida Keys to live and play and which supports the marine life so vital to the economy—the coral reefs.

My original bill was introduced in order to get the issue aired before the last session of Congress adjourned. We did not have time to consult the governments involved or the various interest groups. Since then, however, many people have made constructive suggestions as to how this proposal can be improved and refined, but no one has argued against the need to protect the reef. I am pleased that, recognizing your time constraints, so many of those who have expressed concern over this proposal are here today to provide their comments. I am also pleased that Senator Bob Graham, who has introduced similar legislation in the Senate, is here. With this hearing, we move another step closer to providing the needed protections for the coral reefs.

Since my bill was introduced, I have had the benefit of hearing the views of many interested parties and, based on these comments, I would like to offer some recommendations as to how this legislation can be improved. One of the more appealing aspects of the National Marine Sanctuary Program (NMSP) is that, for each resource, a tailored management plan is always developed. Since the introduction of my legislation, there have been many constructive comments as to what should be included in the management plan. Therefore, I ask that provision for a comprehensive management plan be contained in the final version of this legislation.

One potential problem which will face the managers of the proposed sanctuary is the number of different government agencies, particularly at the state and Federal levels, which are currently managing lands and programs in the Florida Keys. Without including a coordinated mechanism which ensures cooperation among the Federal, state, and local governments in this legislation, we simply will not be doing all that we can to protect the reefs. Thus, it might be a good idea to include a provision for such a mechanism in the bill.

One of the most overt threats to the area, and one which I have long opposed, is the threat of offshore oil and gas exploration. The Department of the Interior previously sought to lease this area for oil and gas development. As we work to create this sanctuary, it makes no sense to allow such a detrimental activity in an area to which we are granting a significant environmental designation. Therefore, I ask that you include a prohibition on mining, mineral extraction, and hydrocarbon exploration, development, or production in this legislation as a necessary protection to the proposed Florida Keys National Marine Sanctuary.

The NMSP has shown that it is a flexible tool in balancing the various needs of each individual resource through the management plans it promulgates. Many people have urged that the management plan for the proposed sanctuary be similar to the approach employed to preserve Australia's Great Barrier Reef. Their management concept designates zones for various uses in different areas, but leaves approximately 98 percent in the "general use zones" and open to most activities.

I support this type of approach, but it must be applied with caution because the Florida Reef Tract is not nearly as large as the Great Barrier Reef. The management plan that is implemented should enable those who make their livelihood from the reefs to continue to be able to do so. While the reefs are an ecological treasure, they are also a valuable economic and recreational resource. For various cultural, historic, and economic needs, activities such as commercial and recreational fishing and treasure salvaging must be allowed to continue responsibly where they will not cause damage to the reef itself. The consideration of the continuance of these activities must be a factor in the formulation of the management plan in a manner which is consistent with the NMSP's mission.

One of the Florida Keys' most important industries is commercial fishing. This has been one of the more controversial aspects of sanctuary designations in the past, and it is in this proposal as well. Representatives of both the commercial and tropical fish industries have expressed a degree of comfort for the administration of fisheries policies to continue to be administered by the bodies currently regulating these activities. Fishermen understand the need for sound management of fisheries, but we must ensure that they are allowed to continue to earn a livelihood.

The impetus for this legislation was the series of vessel groundings last year, and it is probably the easiest threat to address. The Coast Guard has submitted, and the President has endorsed, a proposal to the International Maritime Organization which would create an "area to be avoided" for commercial shipping traffic off much of the Florida Reef Tract. As the provisions of H.R. 3719 indicate, I also support this proposal which essentially pushes commercial shipping traffic approximately 10 miles offshore, while exempting certain channels. I am pleased that the Coast Guard has initiated this proposal and that, according to U.S. representatives to the IMO, early indications are that it will be favorably received by that body.

The proposed two-nautical-mile buffer zone from areas determined to be of "ecological significance and navigation hazard" is very germane to what we are trying to accomplish. The deterrent for an "area to be avoided" is that insurers will not cover claims for damages caused by a vessel in these areas, which gives captains a strong incentive to comply with such a designation. If caught, vessels travelling inside the buffer zone would be cited for violating the law and these citations would be reported to the vessel's insurance carrier. Properly observed and enforced, these designations will substantially assist our efforts to regulate commercial shipping passages through the Straits of Florida and protect the coral reefs.

The Florida Keys are blessed with a wealth of marine resources which we know need to be protected from the number of threats they face. The damage to the coral reefs from last year's accidents was extensive, but we were fortunate that these accidents occurred in Federally protected waters because it gave the Government legal avenues to assess fines and penalties and pursue monetary damages in the courts. What these groundings showed us, though, is how vulnerable and unprotected this area has been to a major catastrophe and how some sort of designation is needed.

Had these groundings taken place in unprotected waters, and had their cargos spilled into the water, it is conceivable that there could be very little legal recourse to pursue monetary damages. While the issue was being argued in the courts, the people whose livelihood depend on the reefs, and the reefs themselves, would suffer. This is one reason to create a unified Florida Keys Sanctuary. Another good reason is that all fines and penalties for violations in a National Marine Sanctuary are returned to that individual sanctuary for restoration of the damaged resource.

One of the issues which many have addressed on this proposal is the very serious problem of poor water quality in the area. Scientists, fishermen, divers, and other can explain how poor water quality affects the entire ecosystem in the region. Needless to say, like any other polluted habitat, poor water quality makes it increasingly more difficult for the resource to sustain life. At this time, there is strong evidence that fertilizer runoff from South Florida's agricultural lands, sewage discharge in Dade County, and various sources of runoff from the Keys are all contributing to the continuing degradation of water quality. Some very good data has been produced, but there has never been enough of a commitment in funding to determine precisely which sources are responsible for exactly which problems. We must find these answers soon, and we must turn them into strong and effective policies to combat the problem.

Without the substantial commitment to build a data base, develop programs and methods to improve water quality, and constant monitoring of water quality, marine sanctuary designation will not save the reefs. A good first step would be to provide the necessary funding to enable NOAA to manage the sanctuary and meet its needs. NOAA officials have told me that they estimate first year start-up costs for the proposed sanctuary to be $750,000; I urge you to include such an authorization in this legislation.

Several people on both sides of this proposal have correctly stated that creating the sanctuary and adequately funding it are two different matters. I have consistently supported full funding for this program, and on several occasions requested such funding from the Appropriations Committee. Our Nation's marine environment has only just begun to get the attention it deserves; this program should not have to rob Peter to pay Paul with its scarce resources. I will continue to support increased funding for this program and, with several new sanctuaries in the pipeline, I hope that, during the next reauthorization of the NMSP, you will increase the authorization levels for this important program.

The only living coral reef in North America deserves to be fully protected and the sanctuary program provides the flexibility by allowing compatible uses. Some people may have to get used to doing things a little differently and, yes, there may be some areas that are restricted from certain activities. That is the price we *all* must pay if we are going to do what is right and what is necessary to preserve the integrity of the reef system. It is clear that the job is too big for the county, the state, the Federal Government, or the private sector to tackle individually; but it is not too big if all groups work together to do what needs to be done.

Mr. HERTEL. This week we had hearings on three different subjects. Yesterday, we were talking about protecting beaches. We found out in New Jersey their biggest industry is tourism. I would imagine in Florida tourism is the number one industry, particularly in the Keys.

There is nothing more important than the ecology of the Keys and protecting this reef system, as you say, for future generations. This stands as a responsibility of all Americans. Since both of you represent this area in particular, aren't the economic pinnings also dependent upon visitors and tourists and, therefore, the protection of this ecological system?

Mr. GRAHAM. The three principal sources of economic activity in the Florida Keys are fishing, both commercial and recreational, tourism and increasingly as a second, a retirement home area. All of those are dependent on the quality of water. That is the essential resource which attracts people to come to visit, to stay and to use that resource. So, this is not just an issue of environmental protection. It is also an issue of economic survival.

Mr. HERTEL. Senator, what might be your prediction on the Senate legislation S. 2247 as to progress and timing?

Mr. GRAHAM. Well, as in all things, the Senate looks to the House to move first with wisdom——

Mr. FASCELL. Especially vigor.

Mr. HERTEL. If this legislation is adopted, the Governor of Florida could eliminate certain areas of the sanctuary if they align state managed waters. Do you have any indication of the current governor's position on this question?

Mr. FASCELL. I don't.

Mr. GRAHAM. I do not. To my knowledge, a position has not been formulated yet. I understand that it is going through the normal staffing process of the environmental agencies which will conclude with a recommendation to the executive for a position. They have not reached that point as of now.

Mr. FASCELL. Mr. Chairman, I forgot to mention the fact that with respect to groundings, one of the original concepts was to get the U.S. Government to go to the International Maritime Organization (IMO) and get a designated "area to be avoided."

I am happy to say that is in the process and in the mill now. I think that is very essential. I don't know whether it is necessary to legislate this since the matter is being taken care of administratively. I see no problem with this as long as recommended channels are preserved for transportation, commercial, and other legitimate uses.

Mr. HERTEL. Chairman Studds?

Mr. STUDDS. I have no questions. I want to thank Senator Graham and my distinguished Chairman. For a moment I thought

we were going to negotiate Central American policy as well in this bill.

Mr. FASCELL. I am ready.

Mr. STUDDS. I know, I know.

Thank you for your indication of readiness to talk not only about this bill, but to the other——

Mr. FASCELL. May I say on coastal barriers, obviously the big question with regard to the reef is water run off. We have had tremendous, shall I say, growing and evolutionary pains in the Keys in terms of where we are going to be between what we are, what we want to be, and what normal growth is.

I don't know that there is such a thing as normal growth in the Keys because it is God's paradise. Everybody wants to come there and everybody wants to build there. Every time you get one more person, you got additional problems. Whether run-off comes from the phosphate or the sugar plantations up around Lake Okeechobee, or whether it comes from run-off in Dade County, in Miami just north, or whether the Keys themselves contribute to it. The problem is we need to get a handle on the question of degradation of water quality.

All I say is let's find an acceptable way to do that and if we had been able to do what is suggested in terms of catching the land before it was so highly developed, we would have had a better chance. It is more difficult now.

Nevertheless, it is essential, so I am ready to sit down and talk not only with you, but with anyone with regard to this. I just did not feel that the initial approach, which is the redefinition of a barrier island, was a sound approach to deal with the problem.

I do not deny the extent of the problem and I appreciate the efforts that you are making to try to come to grips with it.

Mr. STUDDS. I want you to know that is not solely because we have a shared constituency. I don't know about you, but I resent those constituents of mine who spend the summer in my district and the winter in yours.

Mr. FASCELL. As long as they keep it green.

Mr. STUDDS. We will look into that. I think it is essential to look into this in January or February. Thank you very much.

Mr. FASCELL. I agree.

Mr. GRAHAM. Mr. Chairman, I hope you will be checking on it for purposes of the oversight legislation, it having been previously passed and signed into law by January or February.

Mr. STUDDS. In either event. Thank you.

Mr. HERTEL. Mr. Goss?

Mr. GOSS. Thank you, Mr. Chairman. I just want to ask if you would be willing to turn that line on the corner and take it a little bit farther up the West Coast.

Mr. FASCELL. How much further do you want to go?

Mr. GOSS. We could work out something. I wanted to express my admiration and respect for the work you have done, to bring this to our attention, bring this to a head.

I think conceptually this is the right way to go. I know there are adjustments that need to be made. I have had the representation from local government already. I come from that school myself. I

am very sympathetic to some of the problems they are going to have.

I think we will have testimony on that today, and that is going to be important. We have already had some comment that there is a process going on to bring the state in at the Governor's level, which I think is extremely important because this is still an area of critical state concern.

It may or may not be a while longer. I think those are doable problems. I look forward to helping you all make those things come to pass. I thank you very much. I would certainly like to pay special credit to now Senator, then Governor Graham, who made me aware of some of these problems many years ago and got me personally involved.

This is a special moment for me, and I say thank you. We will try to get it done right. Thank you very much, Mr. Chairman.

Mr. HERTEL. We thank you very much.

Mr. Tim Keeney, Director of Office of Coastal Resource Management, NOAA; and James R. White, Chief of Short Range Aids to Navigation Division, Office of Navigation Safety and Waterways, U.S. Coast Guard.

We are going to continue under the five-minute rule for all witnesses. We would like to allow you to submit any written testimony that you would like to for a period of 45 days. But we would like you to summarize.

There will be points for brevity and originality. The Subcommittee doesn't need to hear the same thing over and over. We can pick up on it. It is the same rule we hold ourselves to as Members of the Committee. We hold ourselves to five minutes as well.

Mr. HERTEL. Mr. Keeney?

STATEMENTS OF TIM KEENEY, DIRECTOR, OFFICE OF COASTAL RESOURCE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND CAPTAIN JAMES R. WHITE, CHIEF OF SHORT RANGE AIDS TO NAVIGATION DIVISION, OFFICE OF NAVIGATION SAFETY AND WATERWAYS, U.S. COAST GUARD HEADQUARTERS

Mr. KEENEY. Thank you very much. I am pleased to be here today to relay to the Committee the Administration's support for efforts to further the protection and management of the coral reefs off the Florida Keys; and to provide Department of Commerce views on H.R. 3719, the "Florida Keys National Marine Sanctuary Act of 1989." I am accompanied by Joseph Uravitch, Chief of the Marine and Estuarine Management Division (MEMD). I have submitted a copy of my prepared testimony and ask that, with the Chairman's permission, it become part of the record.

I want to clearly state at the outset that the Administration opposes Congressional intervention into the marine sanctuary designation process. The current process of nomination, evaluation and designation works well and ensures that all points of view are considered. However, because Congress initiated the designation process for the Florida Keys when it passed the 1988 amendments of the Marine Protection, Research, and Sanctuaries Act (MPRSA) and the initial results of NOAA's site studies support designation,

we do not oppose this particular intervention. We do oppose, however, any future Congressional intervention in the designation process.

President Bush recently expressed how important he believed it was to protect these reefs. While in the Florida Keys for Earth Day last month he said, "The Florida coral reefs are one of the most diverse ecosystems in the world and a unique national treasure. Protecting the reefs from damage, both from vessel groundings and pollution, is imperative."

This bill would restrict certain commercial vessel traffic in waters off the Florida Keys out to the 300-foot isobath and authorize penalties, including vessel seizure and forfeiture, for violations. Nothing can guarantee that a large vessel will not run aground again, but the effect of this bill in deterring future groundings will be significant. Vessel crews will exercise more care in transiting the area and owners will be more diligent in assuring the mechanical condition of their vessels and the competence of their crews.

The Florida Keys and their surrounding waters form an extremely sensitive and valuable marine ecosystem. The coral reef ecosystem is a complex ecological network encompassing several closely interrelated terrestrial and aquatic habitats. The coral reefs are the most well-known of these habitats and are vitally important to the economy of the area. The Florida Reef Tract is the third largest barrier reef system in the world and is unique in the coastal waters of the United States.

H.R. 3719 is a first step to deal with the hazards to the Florida Keys posed by commercial vessel traffic, particularly the larger ships that have the potential for disastrous environmental impacts. To be more effective, the bill should take advantage of the comprehensive approach to the conservation and management of special areas of the marine environment found in the MPRSA. The sanctuary designation standards and procedures found in the MPRSA should be incorporated to ensure that this distinctive area will be protected for continued long-term compatible human uses. This would ensure that the "unified Florida Keys National Marine Sanctuary" would represent a true National Marine Sanctuary, as defined by the MPRSA.

The comprehensive management provisions of the MPRSA would allow H.R. 3719 to go beyond large vessel groundings and address some of the multitude of resource management issues facing the Florida Keys. While the sanctuary program alone cannot resolve all the resource management problems facing the Florida Keys, it could provide a large measure of added protection for the marine resources and complement state and local efforts.

This additional protection would not be based solely on regulation and enforcement, but rather would incorporate management measures, such as mooring buoys that would allow users to visit the reefs without the risk of damage from anchoring, education to encourage wise use of the marine environment, and research to monitor resource quality and predict the effects of continued use. NOAA has many years of experience in the successful management of marine protected areas in the Florida Keys. The existing Key Largo and Looe Key National Marine Sanctuaries have dem-

onstrated the ecological and commercial benefits of preserving these areas for future generations.

I would like to point out that public perception of and appreciation for National Marine Sanctuaries has never been higher. The multiple-use approach of the National Marine Sanctuary Program has been the key to ensuring resource protection while maintaining public enjoyment and use. In Florida, NOAA has developed close links with user groups, such as the dive industry, to encourage resource protection both inside and outside the boundaries of the two existing sanctuaries. We have provided training and technical assistance in many aspects of sanctuary management to numerous countries seeking to establish protected areas to preserve their marine resources.

Under the 1988 amendments to the MPRSA, NOAA was instructed to study three areas in the Florida Keys and determine whether they were appropriate for designation as National Marine Sanctuaries. They are described in my written testimony. Preliminary field surveys were carried out during the summer of 1989. Initial indications are that the resources in these areas would quality for sanctuary status and that management as a marine sanctuary would provide improved resource protection.

The Department of Commerce supports efforts to revise the bill to allow the designation of the proposed area as a sanctuary and give the Secretary of Commerce the authority to promulgate regulations consistent with his authority to regulate and manage National Marine Sanctuaries. Shortening the designation process in this manner would not circumvent the spirit of public involvement in the process articulated in the MPRSA. The process would include public hearings and numerous opportunities for public input. Under the National Environmental Policy Act and the Administrative Procedures Act, NOAA would still be required to conduct environmental analyses, publish draft regulations and seek public comments.

Regarding the proposed boundary, the Department of Commerce recommends that the westernmost boundary of the area be Rebecca Shoal to eliminate any overlap with an existing protected area, Fort Jefferson National Monument. We also recommend that the sanctuary boundary be defined on the Gulf of Mexico side of the Florida Keys by following the Coast Guard's Are To Be Avoided (ATBA) boundary back to Key West and then using U.S. Route 1 as the landward boundary. Additional consideration should be given to expanding the jurisdiction of the Department of the Interior by extending the boundaries of Biscayne National Park to the 300-foot isobath.

In conclusion, we believe that the coral reefs off the Florida Keys merit the additional protection that Mr. Fascell's bill would provide, as well as added benefits under full National Marine Sanctuary status. The Administration is committed to the conservation and sound effective management of this valuable area in conjunction with state and local governments. We look forward to reviewing the revised bill and working with the Committee in ensuring the preservation of one of our Nation's most unique treasures.

This concludes my prepared statement. I will be glad to answer any questions you may have.

[The prepared statement of Mr. Keeney can be found at the end of the hearing.]

STATEMENT OF CAPTAIN JAMES R. WHITE

Captain WHITE. Good afternoon.

With your permission, I will summarize my record and ask it be printed in the record in its entirety.

I am Captain James White, Chief of the Short Range Aids to Navigation Division of the Coast Guard's Office of Navigation Safety and Waterway Services. I am pleased to appear before you today to present the Coast Guard's views on the Florida Keys National Marine Sanctuary bill introduced by Congressman Fascell.

I have had the privilege of visiting the Key Largo and Looe Key National Marine Sanctuaries and seeing first hand the beautiful coral reefs and vast array of living plants and animals that rely on the reef for food, shelter and breeding sites. It is truly a national treasure and should be protected.

The Coast Guard recognizes the environmental sensitivity of the Florida Coral Reefs and supports the intent of the bill to protect them. Last fall three commercial vessels grounded along the Florida reefs within the boundaries of the Key Largo National Marine Sanctuary and the Fort Jefferson National Monument West of Key West.

While not resulting in pollution, the groundings caused considerable damage to the living coral. Vessel groundings and the risk of oil spills from those groundings are a serious threat to the continued vitality of the reefs.

This bill would protect the marine environment of the Florida Keys by designating one large sanctuary, the Florida Keys National Marine Sanctuary.

While we support the bill's intent, it does raise some concerns which I will address today.

First, the bill describes the sanctuary area as consisting of all submerged lands and waters within the seaward boundary of the 12-mile Territorial Sea of the United States. In a December 27, 1988, proclamation, President Reagan extended the U.S. territorial sea from three to 12 nautical miles for international purposes.

If the intent of the bill is to ensure that the entire sanctuary will extend to the full breadth of the 12-mile territorial sea, then the sanctuary should be described as "all waters within 12 nautical miles from the base lines of the United States established in accordance with international law."

This description would place the entire sanctuary within the territorial sea and would aid enforcement of regulations issued under this bill.

Section 6 of the bill seeks to require the Secretary of Transportation to submit a proposal to the international Maritime Organization to designate the Florida Keys National Marine Sanctuary as an area to be avoided by commercial shipping.

The Coast Guard has already submitted a proposal to the International Maritime Organization for an area to be avoided off the Florida reefs. We recommended that all vessels carrying cargoes of

oil and hazardous materials and all vessels greater than 50 meters in length avoid the area.

The area to be avoided begins south of Miami and extends to and includes the Dry Tortugas Islands. The area to be avoided is approximately ten miles off the Florida coast and approximately 5 miles off the reefs.

The Coast Guard worked with the State of Florida to develop a proposal for an area to be avoided to attempt to prevent larger vessels from running aground and damaging the coral reefs. Public meetings were held in Miami and Key West to gather information and public views on the proposal.

The area to be avoided proposed to the International Maritime Organization encompasses the coral reefs, but also provides for continued essential local traffic through Hawk Channel as well as access to necessary anchorage areas near the port of Key West. These local needs were clearly conveyed to us by the public at the meetings.

That concludes my statement. I will be happy to answer any questions you may have.

[The prepared statement of Captain White can be found at the end of the hearing.]

Mr. HERTEL. We thank you. We are going to dispense of questions. The questions will be submitted to you. You can answer at your leisure.

Mr. HERTEL. The next panel will be Henry Feddern, Scientific Liaison, Florida Marine Life Association. Mr. Pat Yananton, Preservation of our Rights as Individuals to Discovery and Exploration; Ms. Pam Martin, Organized Fisherman of Florida, State Vice President at Large; Mr. Peter Ryan, Vice-President, Monroe County C.A.R.E.S., Concerned Area Residents for Environmental Sanity) and Commissioner Douglas M. Jones, Board of County Commissioners, District 3, Key West, Florida.

The witness will Commissioner Jones, please.

STATEMENTS OF HENRY FEDDERN, SCIENTIFIC LIAISON, FLORIDA MARINE LIFE ASSOCIATION; PAT YANANTON, PRIDE (PRESERVATION OF OUR RIGHTS AS INDIVIDUALS TO DISCOVERY AND EXPLORATION); PAM MARTIN, ORGANIZED FISHERMAN OF FLORIDA, STATE VICE PRESIDENT AT LARGE, DIRECTOR, UPPER KEYS CHAPTER; PETER RYAN, VICE PRESIDENT, MONROE COUNTY C.A.R.E.S, CONCERNED AREA RESIDENTS FOR ENVIRONMENTAL SANITY; AND COMMISSIONER DOUGLAS M. JONES, BOARD OF COUNTY COMMISSIONERS, DISTRICT 3

Mr. JONES. I am Commissioner Doug Jones from Monroe County. We are opposing the sanctuary bill for various reasons. One, of course, we have been in Monroe County, I hear there are representatives on the Federal level telling you how much growth we have had in Monroe County.

In actuality we have between five and six percent of the land mass as all that we can develop, five to six percent.

All of the rest of that land mass in Monroe County is either a Federal park, a state park, a Navy base or is owned by some government agency or some wildlife group. So you are talking about

five to six percent. The wild life groups are buying it up as fast as they can and taking it off the tax roles.

Monroe County came together for the first time in its history. Every faction that you see sitting in this room today against each other came together on one issue. That was the oil drilling. We all were against that because we know the reef is our only resource.

That is all we have left. To give it up to Federal protection is ludicrous. If you only want the reef, that would be fine. But your bill leaves in it the caveat to the state politicians who are running this year to become, "great ecologists."

They can incorporate themselves within the reef, which takes it right up to the shore line, right up to the people's front yards or backyards, whichever. They can't build docks into it. They can't go out of their canals because they are right in the middle of it.

It is like putting us in the middle of Yellowstone National Park. We really don't need that. You talk about the danger to the reef is pollution. I heard that from all of the gentlemen sitting up here so far. How it must be protected. You may not be aware that Monroe County is the first county in the State of Florida to go through a land use plan.

Senator Graham as Governor started that. We are the experiment. We don't wish to be another experiment. It almost destroyed us. We needed it to be done, but what it caused was an explosion of growth, people panicking that they were not going to be able to build their homes.

We used up all of our infrastructure within four years. It should have lasted 15 to 20 years. That is what that plan did for us. It blew us out of the water. Now we as local politicians are fighting desperately to correct these pressures. We are going through a process that is the most stringent process that any county in this United States has to go through as far as growth management.

If you want to build a fence in Monroe County, it goes to the state. They check it out. And if they say, no, and we say, yes, we have to go to the Governor and cabinet to say we want that fenceability. That is where we are at, people.

We are not some loose cannons up and down the Keys building condos and building this and building that. It is a very stringent plan that we are putting together that is going to guide us into the next 20 years and will be state law.

Me and two of my buddies, can't change it tomorrow and say, yes, we are going to desecrate the water to kill the reef. You are trying to protect something here and three to four to five miles, depending on where you are at, is state waters.

Every one of these countries is going through this. They are going to have to control their own water quality. We are doing a water quality study now. We are going to the most stringent methods of treating our sewage now.

We are hauling our garbage out of Monroe County. We don't want anymore land fills. Right now. All these things are being done. Let us do it. We don't need to be adopted by the Federal Government.

We don't need you to come in and take care of us. We have problems with ships hitting the reef. You are handling that. You are

moving the shipping out. We have problems with degradation of the reef that is there.

Help us treat that with scientists and biologists. But, you are not going to have an impact on the water quality because the big counties that have the power, they are going to keep doing it until their land use plan changes.

So, please, I implore you, do not adopt us. Help us. Come down there with a comprehensive plan of helping the reef. We all agree it is our only resource. We are not going to destroy it. The destiny of its pollution is over.

We cannot now pollute that reef because of the things we have to put in our land use plan are going to prevent that. If that is your fear, that it can be changed, it has to go through the legislature to be changed once it is adopted.

We are under tremendous restraints in Monroe County. We do not need anymore. We don't need rules set up from our shore line all the way to the reef. Please. We in Monroe County have voted not to accept this because of these reasons.

If you must do it, just do it in Federal waters. I would like the information that we sent up earlier to become part of the record because I threw my speech away after listening to all of this today.

Mr. HERTEL. No problem.

[The prepared statement of Mr. Jones can be found at the end of the hearing.]

Mr. HERTEL. Mr. Feddern?

STATEMENT OF HENRY FEDDERN

Dr. FEDDERN. Mr. Chairman, ladies and gentlemen, I appreciate your invitation to speak on behalf of many citizens who contribute to the local and national economy and who will be significantly damaged financially by the proposed marine Sanctuary. I am the Scientific liaison for the Florida Marine Life Association, a trade group of fishermen and many others who deal with marine aquarium organisms.

I have bachelor, master, and doctorate degrees in marine biology from the University of Miami, have engaged in marine aquaculture for seven years, and have been active in the Marine Life Fishery for the past 34 years.

The habitat maps spread out before you cover the reef areas between Miami and Key West. Accompanying the maps is a research paper giving an excellent introduction to the ecology of the reefs. I consider this publication, "The Ecology of the South Florida Coral Reefs: A Community Profile," published by Minerals Management Service (MMS84-0038) to be vital reading by anyone required to decide coral reef issues and needing a broad understanding of the reef environment. It is written in layman terms, but also includes the backup scientific data. My calculations of total areas, coral areas, and coral percentages were derived from these data.

The 156-mile length of reef covered by the maps, when multiplied by the distance from shore to the 300-foot isobath, yields an area of about 1300 square miles. This is ⅔'s of the area included in the Sanctuary bills. The combined area of Biscayne National Park,

Pennekamp State Park, and Key Largo and Looe Key national Marine Sanctuaries, is 475 square miles.

This 475 square miles, or 36.5 percent of the total area, contains 43.6 percent of the coral areas, and includes the best coral areas. The remaining coral areas are much less desirable, as indicated in "The Florida Keys Sanctuary Expansion Study Draft" of September 28, 1989, developed by the Sanctuaries office.

The present mix of sanctuaries, parks and so-called unprotected areas has resulted in a delicate peaceful balance of uses by a wide variety of user groups. This balance is being adversely affected by outside forces, including sanctuary proposals.

The present sanctuaries are not able to accomplish their mission of preserving the coral reef. Although they are relatively successful in allocating their resources among selected user groups, they can do little to protect themselves against outside threats such as vessel groundings or polluted water.

Present sanctuary law is vague, unfair and arbitrary because the management plans are not fully based on scientific research and data. I cannot reconcile the allowing of current recreational and commercial consumptive uses while banning marine life fishing, when scientific studies have shown that marine life fishing does not harm the environment.

All present sanctuaries and parks completely ban marine life fishing. Sanctuary rules supposedly have changed to allow multiple use since the Act was passed, but no clear-cut rules have been written.

The Marine Life Fishery is recognized by the state Marine Fisheries Commission as one of the more important fisheries in South Florida. It is a multi-million dollar fishery, and the only fishery in Florida that brings in almost all of its income from out of State and out of Country.

Since almost all of the harvest is shipped by air freight, this fishery is a major contributor to airline income. A significant amount of the marine life fishery output is exported to other countries. A significant benefit to people in other parts of the Nation is that future generations of the Nation's managers, by being able to keep marine aquaria, will gain an appreciation for reef ecology and its complexity that they would not otherwise obtain.

I have included with this presentation a written supplement suggesting a change to Mr. Fascell's bill that will hopefully make it a more acceptable starting point for everyone. It covers all Atlantic Ocean waters along the Keys and embodies a management mandate that fills in the crannies between the various management agencies already in existence in the area, without the expense or controversy of duplication or supplanting of authority. It would establish a "Florida Keys Coral Conservation Area Act."

Our proposal enhances the corals themselves by regulating ship groundings, oil drilling and water pollution, and excluding all other activities such as fisheries, from regulation. This exclusion avoids the expense of duplicating the work of the Federal Fishery Management Councils and the Florida Marine Fisheries Commission, and eliminates most of the current controversy. According to scientific studies, the Marine Life Fishery does not harm the environment, yet Sanctuaries to date ban it as resource removal while

Councils consider it a fishery in no danger of being overfished. The Councils are allowing the state to develop the management plan for the Marine Live Fishery. Unfortunately, this allows a Sanctuary to develop a plan of its own because the Councils don't have one. This problem needs to be addressed.

A Marine Sanctuary whose purpose is to preserve the resources rather than a mechanism to conserve them is totally unacceptable to us. What if the major cause of reef degradation is positively identified after a sanctuary is imposed, and the sanctuary has no legal power to correct the situation? You will have caused more harm than good. Don't be like a surgeon who operates on his patient before he knows what's wrong.

Thank you for your time. I hope these components will be equally applied to Senator Graham's sanctuary bill. Thank you for your time.

[The suggested changes to H.R. 3719, submitted by Mr. Feddern, can be found at the end of the hearing.]

STATEMENT OF PAT YANANTON

Mr. YANANTON. I am Pat Yananton, a former senior microbiologist dealing with the investigation of enteric bacteria and other diagnostic systems.

I also hold the United States Coast Guard Public Service Commendation Award. I have also worked (Attachment 1) with the Legislatures of New Jersey to move the 8-mile ocean sludge dump site.

I have lived in Florida for the last two years now and owned property for the last twenty.

I have been coming to Florida for a long time.

Many people hear the word "Sanctuary," especially citizens not living in the Florida Keys and immediately believe that a Sanctuary will cure all the environmental ills of the area.

It is a point in fact that the present Sanctuary systems which occupy almost 50 percent of the entire reef system, including the most luxurious reefs in the Florida Keys, are experiencing multiple difficulties they cannot control.

A Florida Keys National Marine Sanctuary plan will ignore many of these problems while exacerbating others.

In addition, this plan would upset the present balance between free ocean and Sanctuaries/parks creating economic hardship for many occupations.

One, the present Sanctuaries in existence cannot resolve the greatest threat to reef ecosystems, which is water pollution from outside sources.

Before today ends, more than 225 million gallons of secondary-treated, sometimes raw, untreated sewage will be discharged from Miami outfall pipes alone.

The nutrients released from these pipes just three miles off the beach promote rapid algae growth, inhibit and destroy coral growth, carry toxins, pesticides, heavy metals and can result in permanent reef destruction on a greater scale than any anchor or ship grounding.

Presently, outbreaks of algae are occurring on some of the reefs in the existing Sanctuary off Key Largo.

Attached is a scientific paper discussing the degradation of Carysfort Reef over the last ten years. (Attachment 2)

This reef, located on the northern border of the present Key Largo Marine Sanctuary, lies south of Miami in the Gulf Stream countercurrent which flows south.

The paper discusses damage that could easily be related to sewage.

I have personally made observations from the air and have seen miles and miles of discolored water flowing south and inland towards Miami Beach from these outfall pipes.

The health of our most northern reefs will depend on actions taken by the Environmental Protection Agency as required by Section 302 of the Clean Water Act, amended in 1987, which states, "Whenever new information indicates a negative change in environment due to previous policies of sewage discharge, the EPA Administrator can institute alternate effluent control strategies for point sources."

We, the citizens of the Florida Keys and PRIDE, are planning to present this data to the EPA. We can have meaningful NOAA studies performed in Federal waters without having a Marine Sanctuary as was done in New Jersey during the fish kill of 1976.

We have accumulated data on a variety of technology that can replace public sewage systems and stop marine nutrification.

Present Marine Sanctuary plans cannot resolve non-point sources of pollution entering marine waters from populated areas of the Florida Keys, Homestead, Lake Okeechobee, and the Everglades.

Members of PRIDE will submit to our local commissioners for study a ten-year plan to phase out all antiquated septic systems.

The systems will be replaced by modern, inexpensive, independently owned, pollution-free toilet and septic systems that can be powered by solar or wind-driven energy.

A sample of the plan is attached for your examination and discussion.

The plan will be also applicable for all towns and cities that discharge pollutants into marine environments via public sewage systems.

Sanctuaries and marine parks in the Keys attract thousands of tourists who dive and snorkel every day and cause unintentional damage to the reefs.

Damage is occurring at Grecian Rocks and many other sites.

I have attached the testimony of a charter boat captain from Key West who claims the majority of the coral damage is occurring under the mooring buoys which attract the most crowds.

The U.S. Department of Commerce directive allows for traditional uses of the areas by recreational user groups so long as their activities do not threaten the basic integrity of the site's resource values.

Therefore, if Sanctuary rules were enforced, divers and snorkelers should not be allowed in a Sanctuary.

Present Marine Sanctuaries do not prevent ship groundings. The most recent ship groundings occurred within Sanctuary boundaries. We need improved aids to navigation off our reefs.

Shipwrecks have occurred off the Florida Keys for the past 400 years and have left no permanent scars. Reefs will always grow back if, and only if, water quality is good.

Present Marine Sanctuaries are helpless in the face of natural massive reef destruction such as hurricanes, predators, changes in water temperature and chemistry.

Reefs have been constantly changing, moving, dying and being reborn for millions of years in response to environmental conditions.

Reef dynamics can proceed only in healthy water.

Without a doubt, the present Sanctuary law, if extrapolated to the entire area of the Florida Keys, will negatively affect the lives and finances of many occupations, varying from fishermen to marina operators to real estate sales, not just historic shipwreck salvors and tropical fish collectors.

A negative financial multiplier effect of Sanctuary law off our entire islands will filter down to every life aspect in the Keys.

The National Marine Sanctuaries Act states, "The Secretary shall consider negative income-generating activities and socioeconomic effects of Sanctuary designation."

In closing, I would like to say the National Marine Sanctuaries Act states that "because of questions of manageability, the maximum size will not exceed that of the largest Marine Sanctuary, the Channel Islands, of 1,252 square nautical miles."

The Florida Keys represent an enormous area of more than 2,000 square nautical miles—almost two times the size of the Channel Islands.

An area this size, as discussed in the National Marine Sanctuaries Act, becomes too unmanageable, unmaintainable and unenforceable.

Where would the money to manage this area come from? New taxes? User fees? Licenses?

Do we spend tax dollars and Government budgets on flotillas of enforcement patrol boats or do we focus our efforts and funds wisely on the number one, real enemy of the reef, curing water quality ills, only obtainable through non-sanctuary strategies?

Thank you.

Mr. HERTEL. Thank you.

STATEMENT OF PAM MARTIN

Ms. MARTIN. Mr. Chairman, Committee Members, my name is Pam Martin. I am Vice President at Large of Organized Fishermen of Florida, OFF. OFF represents 2,000 commercial fishermen from the State of Florida on the local, state and Federal level on fisheries issues. My position is an elected office, and I am here as a volunteer and not as a paid spokesman.

The commercial fishermen of Monroe County are very concerned with the health of our waters in the Florida Keys. In many cases, commercial fishing is a multi-generational heritage handed down from father to son. It is more than just an occupation, but a way of life where there is not only a respect, but a deep understanding of our environment and how it works. In order to let you understand

how important commercial fishing is to our county, I have provided you some statistical information:

Commercial fishing is the number two industry in Monroe County.

Fifteen thousand people are employed in the seafood harvest industry out of the county population of 78,000.

Monroe County alone has more pounds of commercial seafood landed than the Coastal States of Georgia, South Carolina, and Hawaii.

As a state, Monroe County would rank 17th in total seafood production in the United States.

Seafood is one of the products that Japan is highly interested in importing, thus helping ease the balance of trade impacts.

Monroe County is the leading producer of seafood in Florida with twice as many pounds landed and three times the dollar value as any other county.

Regarding shrimp: More production than any other Atlantic Coast state; Florida's leading producer.

Lobster: Ninety percent of total United States Spiny lobster production, five to six million pounds produced per year, up to $27 million, ex-vessel value;

Stone crab: Fifty percent of United States production, 1.3 million pounds per year in landings, $8 million ex-vessel value.

Twenty-two million pounds total production with the total primary impact of Monroe County's commercial fishing industry to the state and county, excluding retail sales is $100 million a year.

Dockside value is what the fishermen were paid at the dock and do not include the multiplier effect.

These statistics are according to the National Marine Fisheries Service. Employment statistics were provided by Florida Sea grant.

I hope with this information you can realize how important this is to our county as well as to all the commercial fishing families and to the consumer, too. At this time, the attached resolution from our County Commission and the excerpt from the minutes of the January 19, 1990 minutes of the OFF directors meeting best reflect the position of OFF on the Sanctuary issue.

I live on Snake Creek. I have five bunk beds downstairs. Come on down and find out what this is all about.

Everybody wants to save the reef, but I don't think the Sanctuary bill is how to do it.

I appreciate Dr. Fascell's concern and I think we are going in the right direction and starting to have study and education.

One thing I need to say is non-bias study—the fisheries management is one of the most volatile footballs you can have in the Southeast area.

We do need non-biased so that the facts prove the points.

Right now, the average, everyday citizen under the Sanctuary can be spending the night in jail if they go aground on the Sanctuary.

A friend of mine who leased out boats and houses unfortunately had to bail one of his folks out of jail who leased his boat. It cost him $10,000 and all he did was rent him a boat.

I don't think you want everyday folks who misread a marker to be spending the night in jail.

So we need to see what kind of long-term effects this will have.

We need to keep the Fishery Management Council in power and, of course, a lot of times folks are looking for someone to blame.

The commercial fishing is the very convenient dumping post of folks.

I think you are starting to understand.

It is a very, very complex problem where we go and how we got to where we are now.

It has lots of varieties of reasons.

Whether it is from farmers to, of course, what is happening now in our Everglades with the mercury being released from the muck, from storm water runoff and even roads run off.

What we need to do is have a lot of education. Educate our two million tourists.

They need to leave the Keys better, not use it as a trash dumping ground.

You can't get a simple solution and I think the direction is you may be examining all of those, not only Dr. Fascell's bill, but Senator Graham's bill, and starting in a new direction.

You need to get all people and all user groups together and help work on this.

The 300 foot would actually make a lot of fishing here illegal. You need to ban oil drilling. You really do down there.

If you can understand what we are made of, I don't think you would like to be down there after an oil spill trying to clean up our reef line with a Q-tip.

We thank you for your concern and effort.

Dr. Fascell brought you one of the headlines. Get rid of commercial fishing. It is convenient. It makes it a quick, simple answer.

The commissioners are opposing it; just on and on, different stories.

Here we are having some folks telling the scientists they need to look at different ways about our canals and main grove islands.

One thing also I need to really report here is that a lot of times somebody can grab a headline and the press will take it and run with the ball. That is really out of context.

There are certain areas where red snapper is in trouble, but most of our fisheries, fish are pretty smart. They don't want to live in polluted water either.

The fishermen are not keeping up with where the fish are moving. The same thing is true with mackerel.

The International Trade Agreements are working with our Fishery Management Council.

We would like to go ahead and create the new package, have it in a task force and again all user groups have input in this.

Dr. Gilbert Voss, who was instrumental in the park, one of his comments was, in hindsight, he wouldn't have made it a park because of all of the concentration of folks that come there and what happens to it.

Maybe we are better off keeping the Florida Keys a best-kept secret that some people go ahead and discover it one on one.

As soon as you make the Florida Keys a Sanctuary, we will be in every Winnebago newsletter all over the world and we will have people coming from all over the world to see the Keys and what

you have in the population. A little byproduct, unfortunately, of people is pollution.

I think if you are a true environmentalist in the world, we are just overpopulated and you have to look at those things.

Don't make this a simple solution and kick the fishermen out. It just puts people out of business.

The Sanctuary, if those guys, you make that to a no fishing zone, they have nowhere else to fish because they cannot get to the bay.

We hope that you listen to us and you take our concerns to heart.

Many, many generations of fishermen have got a big piece of effort in this and they don't want to go ahead and kill the kind of golden goose because they want the next generation to be in there fishing, too.

I want to thank you for listing to me and like I said, folks, I have lots of bunk beds.

We will take you fishing and show you what it is all about and even in January, we will show you what is going on down there.

Thank you.

Mr. HERTEL. Thank you.

Mr. HERTEL. Mr. Peter Ryan?

STATEMENT OF PETER J. RYAN

Mr. RYAN. Mr. Chairman, Members of the Committee, my name is Peter J. Ryan.

As Executive Vice President of Monroe County CARES, I have the distinct privilege of presenting a position paper to you today which carries the endorsement of the Big Pine Jaycees, the Lower Keys Contractors' Association, the Lower Keys Chamber of Commerce, the Marathon and Lower Keys Association of Realtors, and Monroe County CARES, Inc.

We cannot support the creation of the Florida Keys National Marine Sanctuary as proposed in H.R. 3719.

The sheer lack of substance within this bill, the absence of provisions for the protection of commercial fishermen, tropical fish collectors, treasure salvors, recreational fishermen and divers, marine construction operations; along with the City of Key West's traditional offshore anchorage, its fledgling cruise ship trade, ship chandler services, and vital supply routes for both fuel barges to its emergency back-up power plant, and black oil, diesel, and jet fuel tankers for the Boca Chica Naval Air Station and Navy Fuel Farm render this proposal, in our view, unworkable.

One of the primary goals of this bill, prevention of ship groundings on the reef, clearly remains unresolved as such national Sanctuary or monument status has no deterrent effect whatever on the M/V *Alec Owen Maitland,* M/V *Marvo Vetranic,* M/V *Elpis,* or on the M/V *Wellwood* when these vessels ran aground on the reefs which already carried such designations.

Similarly, though a stated goal of the National Marine Sanctuary Program Development Plan is to "promote and coordinate research to expand scientific knowledge of significant marine resources and improve management decisionmaking, recent reports

indicate that such designation tends to discourage independent research due to the increased difficulty in obtaining permits.

In one case, a prominent scientist with outside funding was refused a permit during the early 1980's to conduct work on the long-spined sea urchin Diadema, apparently because the research was not consistent with management objectives.

Several weeks later, the entire population of urchins, 95 to 99 percent, were destroyed as part of a Caribbean-wide die-off, and thus a chance to document pre-die-off population levels and activities was lost forever.

In addition, the current lack of research facilities in close proximity to existing Sanctuaries which could be used by independent scientists speaks to the low priority assigned such work.

We believe there are many specific, effective and economically feasible actions which can be taken by the Federal Government to protect this resource without resorting to such a huge bureaucratic overlay and its attendant costs to the taxpayer.

To that end, we respectfully suggest the following measures:

One, have the United States delegates to the International Maritime Organization seek designation of the Florida Keys Reef Tract as an internationally recognized area to be avoided.

Two, extend the territorial sea and the Federal District Court jurisdiction to 12 miles offshore from the current three-mile limit.

Three, implement a minimum depth buffer zone around existing Sanctuaries and National Monuments.

Four, Mandate that all vessels carry current, local navigational charts.

Five, require the U.S. Coast Guard to begin a comprehensive review of the aids to navigation system in the Keys for the purpose of making specific areas for commercial shipping lanes along the reef tract with high-intensity light beacons, radar reflectors, low-frequency VHF warning transmitters, red sector mechanisms and deep-moored coastal buoys.

Six, create a coordinated Marine Traffic Control System from Miami to the Dry Tortugas comprised of radar, Loran C, Sat/Nav, coastal pilots, and the aforementioned aids to navigation.

In conclusion, the people I represent here today recognize and appreciate the good intentions of our distinguished Representative Dante Fascell.

Yet, as the public tries to sort through the confusion generated by this bill and the companion legislation introduced in the Senate on March 7 of this year, S. 2247, those of us who earn our living from the reef; who depend on its vitality for our very survival; and who call those islands home, we worry. We worry that all the promises, all the assurances we hear today will fade from memory down the road and that in a county where the Federal and state Governments already control some 95 percent of the land, we may one day be told that our access to and existence near a Florida Keys National Marine Sanctuary is not consistent with current management objectives.

Thank you for letting me speak to you today.

Mr. HERTEL. Thank you.

[Letters of certification attesting to Mr. Ryan's authorization to speak on behalf of various organizations, along with a resolution in opposition to H.R. 3719, can be found at the end of the hearing.]

Mr. HERTEL. Thank you all very much.

We will submit questions for you to answer at your leisure in writing. If you would like to, summarize your oral presentations in five minutes.

STATEMENTS OF BOB HOLSTON, PRESIDENT, FLORIDA ASSOCIATION OF DIVE OPERATORS, KEY WEST, FLORIDA; CRAIG QUIROLO, EXECUTIVE DIRECTOR, REEF RELIEF, KEY WEST, FLORIDA; ALEXANDER STONE, DIRECTOR, PROJECT REEFKEEPER, MIAMI, FLORIDA

Mr. HOLSTON. Thank you for the opportunity to appear before you today. My name is Bob Holston, and I represent the Florida Association of Dive Operators.

FADO represents the Scuba and snorkel industry in the State of Florida. The Scuba industry contributes in excess of $1 billion per year to the economy of Florida. The majority of this economic contribution is directly related to the dive industry in the Florida Keys. The Florida Keys are the number one dive destination in the world because of the unique coral reef system found in the Keys.

FADO originally nominated the Keys as a marine sanctuary. Our Board took this action after almost two years of research and study. We are supported by the Keys Association of Dive Operators in our views and thought. KADO has nominated the existing Key Largo Marine Sanctuary to be expanded.

Chief Justice Oliver Wendell Holmes once said, "The first step toward improvement is to look the facts in the face."

FADO has looked at the facts and studied the procedures involved in the Marine Sanctuary program. The only hope we have is to be involved in the protection of a unique and fragile ecosystem. We cannot subscribe to emotional fears or self-serving interest to escape our responsibility of preserving our environment.

The testimony heard today from some Members cannot be based on facts. We have addressed each issue presented to us and have found that the true facts support the establishment of a marine sanctuary.

Our own County Commission established a marine sanctuary committee in January 1989. I have enclosed a copy of Resolution 031-1989 for your review. The facts have not changed but self-serving interest has prevailed.

FADO is aware of the concerns addressed by our opposition, and we will work with them to address those concerns. Federal law requires public hearings in the Keys to receive input from the community.

The Looe Key Marine Sanctuary was fought by self-serving interest and history has proven them incorrect. Looe Key National Marine Sanctuary is an excellent example of results achieved through cooperative efforts.

FADO and its members are in favor of the marine sanctuary designation in the Florida Keys.

In the children's story, Alice in Wonderland, there is the following exchange between Alice and the Cheshire Cat:

"Alice asked, 'Would you tell me, please, which way I ought to go from here?'

" 'That depends a good deal on where you want to get to,' replied the cat."

We know where we want to go. We want to preserve and protect our reef while maintaining a strong local economy based on tourism.

Thank you.

Mr. HERTEL. Thank you.

Mr. Quirolo?

Mr. QUIROLO. Yes. I would like to submit my written testimony and sort of shorten it down.

I also have a visual little photo portfolio I would like to submit as evidence or have it in your hands so you can look at it.

I also have a resolution by the City of Key West in support of the Sanctuary Water Program, a resolution in support of the legislation protecting the Coral Reefs and a letter in support of H.R. 3719 and two local nonprofit groups.

STATEMENT OF CRAIG QUIROLO

Mr. QUIROLO. My name is Craig Quirolo, and I am Founder and Executive Director of the Key West-based environmental group, Reef Relief.

This organization was founded on the principles of protecting and preserving the living coral reef of the Florida Keys.

More than half of our membership is of concerned citizen who reside outside the Florida Keys.

Our most important program is the installation and maintenance of 83 reef mooring buoys at six different reefs spanning a 13 mile distance. Buoys eliminates the need for boaters to drop anchors on the living coral.

Reef Relief has also developed a countywide public education program including the operation of an environmental education center in Key West designed to teach the public how to interact without harming the coral reef habitat.

Through our marine debris project, we sponsor annual reef and out-island clean-ups, and promote public awareness of the threat that litter poses to marine and bird life through entanglement and ingestion.

Reef Relief is a strong supporter of the national marine sanctuaries program. It is literally impossible to explain the evolution of Reef Relief without giving credit each step of the way to the marine sanctuaries program—its goals and, most importantly, its personnel.

They have provided us with leadership, expertise, and cooperation.

The reef is a resource of national and international importance. The coral reef is the most diverse marine ecosystem in the world, rivaled only by the tropical rain forests on land. Reefs have been in existence about 200 million years.

The only living coral barrier reef in North America stretches over 165 miles, from South of Miami to the Dry Tortugas. The reef provides protection for the rich seagrasses, mangrove forests and remaining hardwood hammocks of the Florida Keys—the main habitat for ⅓ of Florida's endangered and threatened species.

The reefs of the Florida Keys contain 80 percent of all coral species in the tropical Western Atlantic. It is home to 150 species of tropical fish.

The reef is dying from pollution and direct damage. Gentlemen, water quality degradation is the number one threat to the living coral reef at this time, with nutrient loading the source of this problem.

Leaking septic tanks, point-source outfall, and the uncontrolled use of pesticides and fertilizers are just a few of the contributors to the algae takeover of our beautiful coral reef.

Coral reef diseases are at an epidemic level due to reduced water quality. Uncontrolled, rapid development encouraged by the County Commission due to their lack of long-term planning is to blame for the current degradation of the living coral reef.

The inability of the County Commission to control development has created a nightmare of infrastructure needs—solid waste, sewage, roads, schools, jails, energy, and hurricane evacuation procedures all remain unsolved. For Monroe County to have the ability to save the reef is, quite frankly, impossible.

Approximately $6 million per year is collected by the Monroe County Tourist Development council to promote tourism through a bed tax on hotels and motels. This is more than the entire budget of the national marine sanctuaries program.

Consequently, the Florida Keys is the biggest dive destination in the world, with over two million visitors per year. No other coral reefs exist anywhere in the world so close to such a crowded region as South Florida.

In Key West alone, over 20 "head" boats carry between 40 and 100 guests per boat to the reef on a twice daily schedule. There are days when over 200 people are in the water at the same reef.

The dramatic increase in the number of commercial dive/snorkel operations in the Florida Keys parallels the rapid overdevelopment of the limited land-base sanctioned by the County Commission.

The State of Florida has designed the Florida Keys an area of "Critical State Concern" because of this uncontrolled development.

Reef Relief drafted a countywide phosphate ban for cleaning products. The ban was manipulated by the county attorney, who attempted to water it down and render it ineffective. Reef Relief efforts resulted in passage of a stronger version. It is currently awaiting the required state approval.

The phosphate ban is an excellent first step in reducing nutrient loading to surface waters. But if county effort alone were responsible, no such ban would ever have been passed.

For Monroe County to claim ownership of the reef, as they have, only confirms their inability to deal with reality and confront the fact that we are only stewards here, responsible for passing on a healthy and diverse living coral reef to future generations.

To leave the reefs of the Florida Keys in the hands of Monroe County is most certainly equal to sentencing it to death.

The creation of a national marine sanctuary for the Florida Keys is critical to preserving the coral reef ecosystem. The considerable amount of success that Reef Relief has achieved over the past four years can only be measured by the amount of assistance and guidance that we have received from the marine sanctuaries program. Without the sanctuaries program and their dynamic staff, the reefs of the Florida Keys would be in much worse condition than they are now, especially regarding the physical damage caused by anchors and divers.

The sanctuaries program developed the mooring buoy system currently in use at both of the sanctuaries in the Keys, as well as those installed at Sombrero Light off of Marathon and at six reefs off of Key West, areas outside the sanctuaries. Literally hundreds of boats use these buoys every day.

Unfortunately, there are many other heavily visited reefs in the Florida Keys that do not have the benefit of mooring buoys. A management plan for our reefs would address this need.

The sanctuary personnel, and in particular Billy Causey, insisted that the Reef Relief mooring buoy project be accompanied by a public education program informing snorklers, divers and boaters how to protect the reef.

Reef Relief has developed an educational program incorporating a coral reef brochure that is distributed countywide promoting safety for both reef users and the living coral. It is in such demand that we cannot meet the printing costs. The need for a countywide program sponsored by the marine sanctuaries program is overwhelming.

The county had the opportunity to exhibit environmental sensitivity by funding our educational brochure yet they denied it. We are now limited in our production of this brochure and have passed out 80,000 in a few months.

Chambers of Commerce, hotels, motels, and guest houses have contacted us for these brochures and have expressed a willingness to provide them to their guests. Unfortunately, our distribution must be limited to dive shops, marinas, boat rentals, fishing docks and boat ramps.

We anticipate a need to print at least one million such brochures per year. Reef Relief cannot afford to meet this demand. A countywide sanctuaries program could help meet this demand.

Specific Recommendation for H.R. 3719:

- Development of strong management plan for core zones, i.e. shallow areas of the reef tract typified by spur and groove formations. Use moorings buoys. no consumptive activities, either commercial or recreational such as fish collecting, live rock harvesting, or spear fishing.
- Allow trolling for fish in the early morning or late afternoon or following the "fewer than five" rule at core zones. If there are fewer than five boats at a reef at a time, trolling could safely be permitted.
- Eliminate opening day of lobster season by staggering the first day of the season in various zones throughout the reef.
- No commercial traps allowed within a quarter mile of the core zones.

- Place certain reefs off-limits to all activities except for baseline scientific studies.
- Address non-point source pollution.
- Address point-source pollution.
- Require licensing and limit entry for all consumptive activities including commercial fishing, fish collecting, live rock harvesting, diving and snorkeling activities.
- Anticipate decline of commercial fisheries as they currently exist. Develop long-term plans which include zones for mariculture activities.
- Zoned management of spear fishing, fish collecting, commercial fishing, diving and snorkeling and treasure hunting.
- Coordinate programs with Marine Biology Department of Florida Keys Community College.
- Address coral disease control, monitoring, treatment, and eradication.
- Establish fines for violating regulations.
- Mitigate treasure salvaging activities with coral reef conservation projects.
- Close the reef to commercial dive and snorkeling activities when the winds are in excess of 25 knots for safety reasons.
- Acquire Pigeon Key for sanctuary headquarters.
- Develop permanent programs incorporating environmental education in local elementary schools.
- Rebuild Sand Key Lighthouse and convert into a study center and museum with a small fee for touring.
- Establish a fifty cents per visitor user fee on all commercial dive, snorkel and glass-bottom boats to fund the sanctuary.

I could go on and on, but if you have a copy of this, I will be glad to answer any questions you might have.

Mr. HERTEL. Thank you.

Mr. Stone.

STATEMENT OF ALEXANDER STONE

Mr. STONE. Thank you Members for this opportunity to testify.

My name is Alexander Stone. I am the Executive Director of Project ReefKeeper, a national affiliate of the American Littoral Society specializing in the protection of coral reefs.

We respectfully ask that our written comments and attachments that were submitted earlier be made an official part of the record.

We support a finding that the Florida Keys Reef Tract is uniquely significant. We present documentation which establishes it as the *only* shallow water coral reef system in the United States.

Distinctively unique natural features and resources are found throughout the Florida Keys Reef Tract. Each of these unique features individually merits sanctuary designation—cumulatively so does the entire Florida Keys Reef Tract.

The small fraction of this unique environment that is protected is not enough to meet the country's responsibility to protect this ecosystem.

Project ReefKeeper supports a finding that these marine environments are nationally significant. Concern for coral reef protection is nationwide. Seventy-two organizations with a combined member-

ship of over eight million have recently banded together to protect coral reefs.

The spectacular Florida Keys coral reefs should be preserved and protected for the long-term benefit and enjoyment of the entire Nation.

It is precisely the Florida Keys areas nearest existing sanctuaries that now enjoy the healthiest tourist economy. We present a comparative listing of Florida Keys Dive Centers showing that 45 percent service existing sanctuaries.

Project ReefKeeper supports a finding that these sensitive marine environments contain literally thousands of species, unparalleled marine biological diversity. We present documentation to that effect.

Based on the findings above, we respectfully urge the Committee to support designation of the Florida Keys National Marine Sanctuary as a unique marine area of special national significance.

These fragile marine environments are threatened by vessel groundings, hydrocarbon exploration, marine water pollution, and fishing over-exploitation.

It is only through sanctuary designation that fines and liability awards from vessel groundings can be used to mitigate damage and increase enforcement.

The topmost and bottommost sections of the Florida Keys Reef Tract are under Sanctuary or National Park jurisdiction. However, an enormous regulatory gap in between, exceeding 100 miles, tempts vessel captains to risk "cutting the corners" to hug the unregulated and exposed midsection of the reef tract.

Recent groundings in existing sanctuaries actually prove that only sanctuary designation of the entire Florida Keys Reef Tract will effectively deter groundings.

Minerals Management Service offshore oil lease guidelines focus on large-scale planning areas and are incapable of considering the environmental sensitivity of a rare and discrete area such as the Florida Keys Reef Tract. We present documentation specifically to that effect.

It is imperative that this regulatory gap be corrected. Designation of a Florida Keys National Marine Sanctuary can achieve that.

We propose a finding that reduced water quality is one of the most serious long-term threats to the Florida Keys Reef Tract. We present documentation specifically to that effect.

Designation of a Florida Keys National Marine Sanctuary would provide a vital opportunity to address this water quality management gap.

Opponents of this sanctuary designation contend that the existing Key Largo and Looe Key National Marine Sanctuaries have failed to protect coral reefs from water pollution. These opponents are missing the point.

Existing boundaries for those two sanctuaries do not provide enforceable jurisdiction over discharges from onshore. The recommended boundaries of a new Florida Keys National Marine Sanctuary would.

Project ReefKeeper proposes a finding that the tropical fisheries associated with these marine environments are being seriously depleted. We present documentation to that effect.

It is not realistic to expect the multi-state Fishery Management Councils to tailor their regulations to fit the unique situation of the Florida Keys.

A Florida Keys National Marine Sanctuary can address these concerns by complementing Fishery Management Council regulations.

Based on these findings, we respectfully urge the Committee to support designation of the Florida Keys National Marine Sanctuary as the most viable means of complementing diverse existing regulatory authorities and providing vitally needed comprehensive management for the Florida Keys Coral Reef Tract and its specially significant resources.

I thank you for the opportunity to testify.

[The prepared statement of Alexander Stone can be found at the end of the hearing.]

Mr. HERTEL. Thank you all very much.

We may have written questions.

Mr. Goss. May I ask a quick question?

Are you the same Reef Relief that just got recognized by the President?

Mr. QUIROLO. Yes.

Mr. Goss. Congratulations.

Mr. HERTEL. Our next panel will consist of Mr. Jack Sobel, Center for Marine Conservation, Washington, D.C.; Mr. John Ogden, Director, Florida Institute on Oceanography, St. Petersburg, Florida; Ms. Lynn Davidson, Marine Habitat Policy Coordinator, Washington, D.C.; and Mr. James Webb, Regional Director, The Wilderness Society, Coral Gables, Florida.

Mr. Sobel.

STATEMENTS OF JACK SOBEL, CENTER FOR MARINE CONSERVATION, WASHINGTON, D.C.; JOHN OGDEN, DIRECTOR, FLORIDA INSTITUTE ON OCEANOGRAPHY, ST. PETERSBURG, FLORIDA; LYNN DAVIDSON, MARINE HABITAT POLICY COORDINATOR, WASHINGTON, D.C.; AND JAMES WEBB, REGIONAL DIRECTOR, THE WILDERNESS SOCIETY, CORAL GABLES, FLORIDA

Mr. SOBEL. Mr. Chairman, Members of the Committee. Good afternoon. My name is Jack Sobel, and I am the Director of the Center for Marine Conservation's Habitat Conservation and Marine Protected Areas Program. CMC is a nonprofit citizen's organization dedicated to the conservation of living marine resources and their habitats.

We have a 10-year history of active involvement on issues concerning marine protected areas, with an emphasis on the National Marine Sanctuary Program, NMSP. We would like to express our thanks for this opportunity to present our views on H.R. 3719, the Florida Keys National Marine Sanctuary Act of 1990.

The testimony I am presenting has also been endorsed by the following groups: The National Resources Defense Council, the National Audubon Society, the National Association of Underwater

Instructors, Ocean Alliance, the Florida Keys Fishing Guides Association, and Defenders of Wildlife.

We strongly support the creation of a Florida Keys National Marine Sanctuary. A Keys-wide National Marine Sanctuary could provide a mechanism for comprehensively protecting the national treasures of the Florida reef system while promoting their wise use and maximizing their long-term values.

The rash of vessel groundings that occurred last fall and caused extensive damage to Florida's coral reefs highlighted their sensitivity and the need to regulate human activities in order to protect them. Sanctuary designation would complement and strengthen efforts already under way by the Coast Guard to secure International Maritime Organization, IMO, designation of much of the Florida reef tract as an area to be avoided.

We suggest extending the seaward extension of the sanctuary out to the 600-foot contour and also favor inclusion of areas on the north side of the Keys to provide additional protection from groundings.

Additional threats and the need for comprehensive management: Although vessel groundings provide one of the most striking examples of how human activities can impact the reef, they are but one of several serious threats to the Florida reef system, and it is likely that other more subtle threats may pose an even greater risk to the area. Controlling vessel traffic will not by itself safeguard the reef.

The sanctuary program is distinct among marine programs for its authority to develop a comprehensive management plan for an area that addresses all of its resources and activities. The Florida reef system is in dire need of such an approach. However, as originally introduced, H.R. 3719 bypasses the normal designation process and does not provide for the development of a comprehensive management plan.

We support Congressional action to immediately designate this sanctuary. However, such Congressional action should not short-circuit the normal requirement that NOAA develop a comprehensive management plan for the sanctuary. We prefer the approach taken in the Graham bill, S. 2247. This bill provides Congressional designation of the sanctuary, but also builds on the existing NMSP procedures requiring NOAA to develop a comprehensive management plan for the area including provisions requiring extensive public participation and Congressional review. We feel that the comprehensive management plan is the heart of any sanctuary designation and must be retained.

I would like to point out that the fisheries councils are already given a special role in developing fisheries regulations for a sanctuary, and I would oppose additional changes in how such regulations are developed.

Although S. 2247 builds on existing procedures for developing a comprehensive management plan, it also provides NOAA with some additional direction regarding certain items that should be addressed in the development of this plan. We believe this direction is constructive, will facilitate the development of a better management plan, and should be incorporated into H.R. 3719.

Despite our belief that most sanctuary regulations should be developed as part of the comprehensive management plan process discussed above, we support the inclusion of two types of regulations in the legislation. The first is a prohibition on commercial cargo traffic within sanctuary waters that would make allowances for permitting vessel operation within Federally-maintained or marked channels. We also support a legislative prohibition on hydrocarbon and mineral extraction or exploration.

We recommend that the sanctuary boundaries be drawn to include the entire Florida reef tract and associated seagrass and mangrove habitats so that they can be effectively managed as a unit and protected for future generations. Such boundaries are the most ecologically defensible and would provide the best opportunity for successful management by making an effective ecosystem management approach possible.

We also support the incorporation of Federal review provisions similar to those found in S. 2247 that would provide additional protection for reef resources and endorse The Wilderness Society's more detailed testimony on these provisions.

Effective management of an area this size and ultimately the success of such a sanctuary will depend on adequate funds being available to develop and implement the management plan. We strongly recommend fully funding the program at $5.5 million. However, even if fully funded, additional moneys will be needed to successfully implement a unified Florida Keys Marine Sanctuary.

Changes made during the 1988 reauthorization of the program provide opportunities for developing creative approaches to funding a Florida Keys sanctuary and should be explored and developed. Funds raised using such approaches should be viewed as supplementing, not replacing, appropriated funds. The Federal Government does have a role to play in supporting marine conservation.

I would also like to submit for the record a letter in support of the Florida Keys NMSP from 22 groups of local and national organizations who are members of the Coral Reef Coalition, a recently-formed network of groups who are working together to secure lasting comprehensive protection for the biological diversity and productivity of Florida's coral reef ecosystem and the wise use of its resources.

Thank you.

[The prepared statement of Mr. Sobel can be found at the end of the hearing.]

Mr. HERTEL. Mr. Ogden.

STATEMENT OF JOHN OGDEN

Mr. OGDEN. Thank you, Members of Congress, for the privilege of testifying on this bill before you today.

My name is John Ogden, Director of the Florida Institute of Oceanography, a statewide consortium which has a responsibility for the coordination of interdisciplinary research for Florida. We are involved in two projects in the Keys, one with the Florida Department of Natural Resources to establish what I call a full-service marine laboratory for education and research at Long Key; and

the second, a privately-funded project directed at sustained ecological research related to management of the Florida Keys seascape.

The Keys coral reef tract is recognized in Florida and the Nation as a major resource for tourism, recreational and commercial fishing, salvage, and protection of biological diversity. It is also increasingly recognized that this coral reef is suffering from the direct and indirect impacts of the rapidly increasing human population of South Florida. Nearly everyone agrees that something must be done, but there is little agreement on the actions needed.

The bill, H.R. 3719, would create a Florida Keys National Marine Sanctuary administered under the existing Marine Protection Research, and Sanctuaries Act of 1972. The geographic scale of the proposed sanctuary, encompassing the whole coral reef tract, recognizes the value of the resource, the scale of its problems, and the scale upon which we must work to solve them.

The coral reefs of the Keys cannot be protected or managed in small sections and parks or without attention to the surrounding marine ecosystems, particularly seagrasses, mangroves, and the adjacent land masses. The whole region might well be termed the "Florida Keys Seascape," and it is the appropriate management unit.

Unfortunately, H.R. 3719 is directed only at the recent groundings of large ships, all of which occurred within existing marine sanctuaries and parks. The proposed Florida Keys National Marine Sanctuary, if limited by its present language to regulation of ship traffic, will have little impact on the alarming, continuing decline of the coral reefs of South Florida.

Collisions between ships and coral reefs are dramatic, but relatively insignificant to a reef over 200 miles long. Coral reefs are remarkably robust and resistant to physical damage, to smashing by anchors, and to chipping away by divers and collectors, provided the damage isn't too persistent or concentrated.

They thrive in tropical seas where hurricanes are a regular occurrence, visiting their havoc on the average every 20 years or less, and often destroying square miles of coral reefs. In fact, scientists believe that periodic disturbance is critical for the maintenance of their great diversity of life. Recovery from such damage may be expected in clean, unpolluted water. It is here that concerned citizens, managers and scientists are beginning to agree that the real problem lies.

At recent meetings concerned with the health of the marine environments of South Florida, a consensus has emerged that the fate of the coral reef is inevitably tied to the land of the Florida Keys and South Florida, and that what we do there is having a slow but inexorable impact "downstream" on the reef tract.

Poor land use practices, sewage, agrichemicals, the contamination of ground water, and runoff of soils has poisoned the normal growth of corals and promoted the growth of algae and phytoplankton which overgrow and smother corals on the reef and cloud the normally clear water, blocking sunlight which is essential for healthy coral reefs.

Thus, we must gain greater understanding of the interaction of land and sea in the Keys, and we must do this at the geographic

scale of the whole Florida Keys Seascape. The creation of a sanctuary, or zoning plan, is a critical first step.

The Great Barrier Reef of Australia provides us a valuable example of the approach that is needed in the Florida Keys. In the early 1970's, Australia began to recognize the GBR as a resource of national significance that must be protected. The Great Barrier Reef Marine Park Act was passed in 1975.

As in the Keys, the GBR resources were used by many potentially conflicting groups, and the Act established a Zoning Plan encompassing approximately 800 nautical miles of coral reefs and extending all the way to shore.

The draft Zoning Plan divided the GBR into four geographic sections which zoning would be applied using the following categories: General Use Zones A & B, Marine Park Zones A & B, a Scientific Research Zone, and a Preservation Zone. Also in the plan were Designated Areas, e.g. replenishment, defense, shipping, and special management, that concerned specific problems or short-term uses.

The draft zoning plan was sent to all users of the GBR who then had an opportunity to go over maps and comment on proposed zones. The end result was a Great Barrier Reef Marine Park Authority and a set of four zoning plans, one for each geographic section of the GBR.

The Australian example can serve to guide a revision of H.R. 3719. The scope of the bill should be expanded to include other impacts on the coastal seascape including tourism, fishing, and exploration.

Following an environmental assessment report and public hearings, a draft zoning plan would then be issued for detailed public comment. The final plan would be responsive to all user groups, would incorporate their concerns, and would pre-dispose public acceptance of and participation in regulation and preservation of a resource of great local and national significance.

Such a zoning plan would largely mirror present public use patterns of the Florida Keys seascape. I have taken the liberty of defining four hypothetical zoning sections on the map of the Florida Keys in my written statement.

One: The Upper Keys, including Biscayne National Park, John Pennekamp State Park, and the Key Largo National Marine Sanctuary, would be zoned for parks, tourism and limited fishing. Some smaller sites might be set aside for general use, preservation and research.

Two: The Central Keys, largely inaccessible to tourists, could be zoned for general use, including regulated spear fishing, line fishing and trolling, trap fishing, and permitted exploration and salvage.

Three: The Lower Keys to Key West, would be a mosaic of park and general use areas, largely following present use patterns, and including Looe Key National Marine Sanctuary.

Four: Key West to the Dry Tortugas, including Fort Jefferson National Monument, would be largely regulated for general use with the Dry Tortugas set aside for park, preservation and research.

My objective is not to impose a zoning scheme on the Keys, but to point out that a zoning plan incorporating present user group concerns would most likely duplicate the existing, and largely accepted, use patterns. Thus, the daunting task of creating an acceptable plan might not be as contentious, or impose as much hardship, as might be expected.

The principal strength of H.R. 3719 is that it encompasses the whole Florida Keys seascape which is the suitable management unit for long-term survival of resources that are universally valued and universally viewed as being in decline. If the bill is broadened to include major impacts on the Florida Keys seascape and a zoning plan to regulate them, we will have gone a long way to ensuring future preservation, use and enjoyment of a unique section of the coastline of the U.S.

Thank you very much.

Mr. HERTEL. Lynn Davidson.

STATEMENT OF LYNN DAVIDSON

Ms. DAVIDSON. My name is Lynn Davidson, and I am the Marine Habitat Policy Coordinator of the international environmental organization Greenpeace. Greenpeace has 4 million supporters, worldwide and more than 100 thousand in Florida. Thank you very much for the opportunity to testify before you today on the Florida Keys National Marine Sanctuary Act of 1990, H.R. 3719. This is a subject very close to my heart, and at the onset, I would like to express my organization's full support for the concepts introduced in this bill.

The Florida Keys coral reef tract is an underwater treasure of international significance. With its beauty and enormous marine species diversity, it attracts 10 times more visitors per year than any other coral reef in the world, including Australia's Great Barrier Reef.

It is the only barrier reef in U.S. waters, and it is under severe stress from numerous human activities. The tourists alone do considerable damage, often without understanding that the reef consists of living organisms; they drop anchors on the sensitive coral polyps, stand on them, break them and sometimes take pieces home as souvenirs.

Overfishing and the use of destructive fishing methods are taking their toll, while water quality on the reef is deteriorating, primarily from land-based sources of marine pollution. Coral disease and algae are flourishing on the once pristine reef. Local efforts to mitigate damage have proved inadequate, as evidenced by the fact that the reef structure is losing coral cover, and with it, species diversity.

A comprehensive management plan with an emphasis on consistency and cooperative agreements between state and Federal agencies is desperately needed. We have counted more than 20 Federal statutes that potentially affect reef species or water quality on the reef, and we are totally confused as to what the laws are at any given time and in any particular location.

Marine sanctuaries, for instance, are managed under the Department of Commerce, while marine parks are under the Department

of the Interior. Understandably, some of the opponents of the sanctuary have become confused and have cited in their literature concern about national park regulations and their application throughout the Florida Keys reef tract when it becomes a marine sanctuary.

This difficulty in keeping up with the vast number of ever-changing laws is more common than not; for many activities that take place on or around the reef the rules change depending on where you are and in what season of the year.

There are often quite different laws in state waters than in Federal waters for the same activities. For instance, there is a Fisheries Management Council that makes recommendations to the National Marine Fisheries Service for regulating fishing in Federal waters, and a Marine Fisheries Commission, which is part of the Florida Department of Natural Resources, that makes recommendations to the Governor and Cabinet regarding the taking of marine life and its habitat in state waters.

Local fishermen, complain that methods used to catch the fish are legal in one place and not in another—wire mesh traps are legal in Federal waters and illegal in state waters—and fish catch size regulations are often different. Members of the Florida Marine Patrol have expressed considerable frustration at the ineffectiveness of trying to enforce the laws, and the Monroe County Sheriff also recently expressed concern at discovering that the Army Corps of Engineers was issuing permits for live rock collection.

Given this scenario, some local citizens are understandably afraid of more government intervention, more rules and more regulations. Nevertheless, some sanity needs to be brought to bear on the situation, and the marine sanctuary program, if properly funded, makes a lot of sense.

First and foremost, it will place the entire reef tract under one agency of government; and the Department of Commerce is the most competent agency to ensure the viability of the commercial uses of the reef.

The National Marine Sanctuary Program's staff at Looe Key and Key Largo have already entered into cooperative agreements for shared resource management with the State of Florida. This concept needs to be expanded to cover the other agencies of government with jurisdiction over the reef, and to address the problems affecting the entire reef tract.

Public education as well as participation in the process are essential elements of a comprehensive management plan. Users of the reef must understand and appreciate the need for preservation measures before it can be hoped that they will comply with regulatory measures. Tourists and residents alike need to be informed about potential damage to corals arising from their activities on the reef.

An easily understood sanctuary zoning plan is also needed to protect important reef species and their habitats; to provide for different activities such as fishing, diving, tourist trips, boat anchoring and scientific research; and to separate conflicting activities.

It is important to stress that any use of the reef and its associated ecosystems must not threaten the reef's essential ecological characteristics and processes. Considerable work has already been

accomplished in both Australia and Belize with regard to zoning and self-regulation by the people who use and depend upon the resource.

Information on public participation and the zoning process can be obtained from marine sanctuary staff about the successes and failures of the Great Barrier Reef Marine Park Authority in Australia; and we will provide, for the record, information concerning the Hol Chan Marine Reserve in Belize.

Land-based sources of marine pollution are causing serious alterations in reef ecology. Citizens of the Florida Keys are struggling with land use planning, overdevelopment, sewage treatment problems, pesticide abuse, et cetera. It is, therefore, vital that the sanctuary program have sufficient authority to address the effects of land-based activities on the reef.

We therefore recommend that H.R. 3719 be amended to include language contained in section 7, the comprehensive management plan, of the Florida Keys National Marine Sanctuary and Protection Act, S. 2247.

The Department of Interior's program on offshore oil development in an ongoing concern for the citizens of the Florida Keys. Coral reefs can be damaged and potentially destroyed not only by oil pollution but by changes in oxygen supply, as well as the intensity of light and temperature.

Oil and gas development can cause these alterations, killing the very sensitive polyps that form the basic life structure of a reef. We, therefore, further recommend that section 6(b), Mineral and Hydrocarbon Exploration and Development, of S. 2247 also be included in the House bill.

It is vital that Congress take a leading role in prohibiting the possibility of oil development taking place along the Florida Keys reef tract, permanently.

Present funding levels for the marine sanctuary program are totally inadequate to accomplish such goals as planning and development; implementing zoning and management strategies; providing public education, information and advice; enforcing the rules; researching, monitoring and interpreting data, et cetera.

Congress and the State of Florida should be prepared to enter into cooperative agreements, not only for the management of the reef but also for financing that management. Fines for damage to the coral from ship groundings, et cetera, should not get lost in the system, but rather go directly back into protecting the reef.

In order for the sanctuary to become self-financing, staff should also be encouraged to propose innovative methods of raising money, such as user fees and fund-raising events.

We have submitted in our written comments an appendix on "The Need for Coral Reef Protection" and would like them entered in the record.

Thank you again for this opportunity to testify. We look forward to working with Members of the subcommittees to generate the necessary support to gain passage of this legislation before the end of this session.

Mr. HERTEL. Thank you.

[The appendix to Ms. Davidson's statement can be found at the end of the hearing.]

Mr. HERTEL. Mr. Webb.

STATEMENT OF JAMES WEBB

Mr. WEBB. Mr. Chairmen and Members of the subcommittees, my name is James D. Webb, and I serve The Wilderness Society as its Florida Regional Director based in Miami. I also oversee operation of our Florida Keys office in Marathon, Florida. On behalf of our 365,000 members, I appreciate this opportunity to appear before you today.

I have spent my working life represented by only two Members of this body: Morris K. Udall, in my former residence, and Dante Fascell in the Nineteenth District of Florida. As a consequence, I have no doubt of Congressional capability for wisdom, energy and accomplishment. It was my fortune, too, to have work associated with some of theirs, first in the effort for the Alaska National Interest Lands Conservation Act, and now for the protection and restoration of the Everglades.

In that work, I have always been assured by the ability of my Representatives to make a true identification of the problem to be solved, and a true effort to apply the authority of the Nation to its just and practical solution. When it comes to the protection of public resources, I think their talent is founded in minds that grasp the systematic character of those resources, and of the related public responsibility.

Also, because of its history, the natural system of the Everglades is one of the most complex and difficult environments in which that responsibility must be met. From the headwaters of the Kissimmee River to the coral reef, the Everglades system has been subjected to human control or—at least—interference.

Preserving the system is not, therefore, a matter merely of leaving it alone, but of devising means of successful human management, every day and in perpetuity. Those means are expressed in a wide range of private choices and by all levels of government.

Consequently, preserving the Everglades is a job in which the institutions of our Federalism must all function at their best.

It is doubtful that the authority of the Secretary of Interior could protect Everglades National Park and Florida Bay from indifference or incompetence in our regional water district.

Similarly, it is doubtful the Secretary of Commerce can protect the reef from misguided land use and water policies of state and local government. Protecting the Florida Keys coral reef resource will require the cooperation of all public actors, commensurate with their roles and with their respective areas of jurisdiction.

Mr. Fascell understands that the region's economic and social health is absolutely tied to that task. He knows that man occupies the 19th District in a delicate relationship to natural systems that are treasures to the world, and are heart and lungs of its local human order.

He knows that we have damaged regional systems to the point that great and appropriate effort is needed to prevent their collapse. He knows we need a functional partnership of Federal, state and local authority to succeed in that, and he is its devoted builder.

The law, and the programs, and the people of Florida reflect increasing adherence to those understandings. The United States has made enormous contributions toward stabilizing degradation of the regional environment by creating and expanding conservation units.

Everglades National Park, Big Cypress National Preserve, Biscayne National Park, Loxahatchee, and the Refuges and Marine Sanctuaries of the Keys are vital not just for protection of the resources within their boundaries; by fixing the purpose and protection of these natural areas, the Federal Government has given our state and local institutions a visible chance of success in their part of the main effort.

Such action by the United States has always had the overwhelming support of Florida's people and the extensive cooperation of their officers.

South Florida's estuarine and marine components are affected by each decision made upgradient in the system. In those components, the United States has jurisdiction, interests, and responsibilities of immense importance.

Those must be acquitted in accord with measures in the rest of the system. In the protection of Federal marine resources, you must lead.

The Wilderness Society supports creation of a comprehensive sanctuary, with organic authorities adequate to integrate its protection in that of the ecosystem. That is your best present opportunity for such leadership.

We support boundaries as recommended by our colleagues at the Center for Marine Conservation, and observe that every past failure to extend the region's conservation units to encompass all possible scope of a natural area has been followed by high—sometimes tragic—environmental and economic cost.

We support the categorical exclusion of mineral exploration and development in the sanctuary. Impacts of those activities on nature and society cannot be accommodated to the pursuit of a healthy regional future.

To be a productive part of that future, we believe the identification and protection of the sanctuary's resources must flow from general, public and effective planning. We commend the Comprehensive Management Plan provisions of S. 2247 as a necessary amendment to your measure.

In many efforts, at all levels, necessary to protect the natural resources of the sanctuary, you must give practical assurance that the United States will protect them in its own activities.

We recommend the Federal Program Review provisions of the Senate measure as an amendment to yours.

They properly cast protection of the sanctuary's value as an objective of all Federal programs. In those provisions, is should be made clear that the national security exception applies to our military security and the integrity of our borders.

H.R. 3719, so amended, conforms to and complements the proper aims of all parties engaged in durably protecting and restoring the region's environment, economy, and social value. We ask that you so report it, and that you firmly support its enactment.

In the general effort, the marine resources of the Keys are now like a boat losing power with shoals alee. The creation of a comprehensive Florida Keys National Marine Sanctuary is a necessary anchor to windward for the whole system, one only you can provide.

Thank you.

Mr. HERTEL. I would like to thank all panel members who have testified today. Once again, we may have questions for you. We appreciate your testimony.

You will be notified of any further action on this specific bill.

The hearing is adjourned.

[Whereupon, at 4:05 p.m., the subcommittees adjourned and the following was submitted for the record:]

I

101ST CONGRESS
1ST SESSION

H. R. 3719

To establish the Florida Keys National Marine Sanctuary, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 17, 1989

Mr. FASCELL (for himself and Mr. JONES of North Carolina) introduced the following bill; which was referred jointly to the Committees on Merchant Marine and Fisheries and Foreign Affairs

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A BILL

To establish the Florida Keys National Marine Sanctuary, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Florida Keys National Marine Sanctuary Act of 1989".

SEC. 2. FINDINGS.

The Congress finds the following:

(1) The Florida Keys extend approximately 125 miles southwest from the southern tip of the Florida peninsula.

(2) Adjacent to the Florida Keys land mass are located spectacular marine environments unlike anywhere else in the United States, including tropical waters with outstanding fisheries and extensive coral reefs.

(3) These marine environments have extensive recreational value and support valuable commercial fisheries.

(4) Establishment of the Key Largo National Marine Sanctuary and the Looe Key National Marine Sanctuary has been successful in protecting certain vital components of Florida Keys marine environments.

(5) Recent vessel groundings along the reefs of the Florida Keys within the boundaries of the Key Largo National Marine Sanctuary and Fort Jefferson Monument west of Key West represent a threat to the vitality of the marine environments of the Florida Keys.

(6) The Congress should take action to protect the existing National Marine Sanctuaries located in the Florida Keys from further vessel groundings, and to protect additional significant areas of Florida Keys marine environments by establishing a unified Florida Keys National Marine Sanctuary.

SEC. 3. POLICY.

It is the policy of the United States to protect the fisheries, wildlife, coral reefs, and other aspects of Florida Keys marine environments—

(1) by designating a unified Florida Keys National Marine Sanctuary;

(2) by restricting certain commercial vessel traffic within that sanctuary; and

(3) by requiring international negotiations to designate that sanctuary as an area to be avoided by commercial vessel traffic.

SEC. 4. DESIGNATION OF SANCTUARY.

(a) DESIGNATION.—The area described in subsection (b) is hereby designated as the Florida Keys National Marine Sanctuary (hereinafter in this Act referred to as the "Sanctuary").

(b) AREA.—The area referred to in subsection (a) consists of all submerged lands and waters within the seaward boundary of the 12-mile territorial sea of the United States located—

(1) in a general southerly direction from the Florida Keys to a seaward extent of the 300 foot isobath; and

(2) between the northeastern-most boundary of the Key Largo National Marine Sanctuary and the

western-most boundary of the Fort Jefferson National Monument.

(c) AREAS IN BOUNDARIES OF STATE OF FLORIDA.—The designation under subsection (a) shall not take effect with respect to an area located within the seaward boundary of the State of Florida if not later than 90 days after the date of the enactment of this Act the Governor of the State of Florida notifies the Secretary of Commerce (hereinafter in this Act referred to as the "Secretary") in writing that the designation of that area is unacceptable. Not later than 30 days after receiving such a notification, the Secretary shall publish and transmit to the Congress the boundaries of the Sanctuary, as modified in accordance with the notification.

SEC. 5. PROHIBITION OF COMMERCIAL VESSEL TRAFFIC.

(a) PROHIBITION.—

(1) IN GENERAL.—No person shall operate in the Sanctuary a vessel which is used in the trade of carrying cargo or in the trade of servicing offshore installations.

(2) LIMITATION.—This subsection does not prohibit operation of a vessel—

(A) in a channel maintained by the Coast Guard; or

(B) in an area designated by regulations issued by the Secretary under subsection (b).

(b) REGULATIONS.—

(1) IN GENERAL.—The Secretary, in consultation with the Secretary of the Department in which the Coast Guard is operating and the Governor of the State of Florida, shall issue regulations designating areas of the Sanctuary where vessels used in a trade described in subsection (a)(1) may be operated.

(2) CONTENT.—Regulations issued under this subsection shall include—

(A) designation of areas of special ecological significance and areas of special navigation hazard, within which vessels used in a trade described in subsection (a)(1) shall be prohibited, including a buffer zone of 2 nautical miles surrounding the feature giving rise to such designation; and

(B) any other provisions necessary to prevent vessel groundings within the Sanctuary.

(c) PENALTIES AND ENFORCEMENT.—

(1) CIVIL PENALTY.—Any person subject to the jurisdiction of the United States who violates this Act is subject to a civil penalty under section 307 of the Marine Protection Research, and Sanctuaries Act of 1972 (16 U.S.C. 1437), and any vessel used for such a

violation is subject to seizure and forfeiture under that section.

(2) ENFORCEMENT.—The Secretary may enforce this section under section 307 of the Marine Protection Research, and Sanctuaries Act of 1972.

SEC. 6. INTERNATIONAL NEGOTIATIONS.

The Secretary of Transportation, in consultation with the Secretary of State, shall prepare and submit a proposal to the International Maritime Organization to designate the Florida Keys National Marine Sanctuary as an area to be avoided. The Secretary of Transportation shall ensure that the proposal would not result in undue interference with enjoyment of the Sanctuary for recreational purposes.

○

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Tentative Description of Installation Plan for Pollutionless Toilet Systems For the Purpose of Avoiding and Phasing Out Public Sewage Systems and Resultant Marine Nutrification

P.M. Yananton, President

Summary

Three commercially available sanitary systems are discussed which, if installed in all new homes after 1992 and gradually phased in all buildings by the year 2000, would eliminate the need for public sewage systems.

This plan has evolved in an attempt to avoid the increasingly large volumes of waste entering our sewage systems from growing populations, especially those that empty into marine waters. Conceived for the heavily polluted waterways of New Jersey, it is ideal for the Florida Keys as some of the units can be powered by wind or solar energy. The Florida Keys, because of their unique marine environment, cannot afford to have its highways ripped up, massive sewage treatment plants constructed and outfall pipes installed which would deliver waste water into our unique marine-reef environment. These pollutionless toilet and septic systems are more affordable than would be the installation of a public sewage system. All antiquated septic systems presently used in the Florida Keys would be eliminated.

Discussion

Hundreds of years ago, people living in cities near streams, lakes, rivers and oceans believed they could deliver their plumbing into these waterways without harm. The waterways were thought to be capable of carrying this waste away. Once it was realized that disease could be transmitted, public sewage treatment plants evolved. Recently with the advent of ecological awareness, it is now known that the nutrients still delivered into our primary waterways from primary and secondary treated sewage can result in a gradual to extreme degradation of the marine environment. Tertiary water treatment in public sewage facilities has not been installed in this country due to extremely high costs.

The volumes of nutrient waste being released into the marine environment have increased dramatically. For example, in 1973 nine outfall pipes in the Miami tri-county area delivered a total waste-water discharge of 30.3 million gallons a day. Today, two outfall pipes from Miami alone deliver 225 million gallons a day of nutrient laden,

secondary-treated sewage water. In addition, storm water runoff can overwhelm these treatment facilities causing the discharge of raw, untreated sewage. Also many, especially those located in the Florida Keys, use septic tanks and cesspools for waste disposal. These older systems allow nutrients to seep into the ground and can escape into the water table or surrounding waterways.

In previous years, due to the lack of modern technology, it was difficult to deal with these problems. Today it is necessary to link local, state and federal programs with these existing technologies so as to begin to eliminate antiquated systems which pollute the environment. All literature describing pollutionless toilet systems and microorganism additives is attached.

Also, many homeowners using inground septic systems do not know how to maintain them properly. As a result, many of these systems accumulate solids and leach nutrients into the ground and surrounding waterways. It is now possible to obtain commercially available microorganisms (such as Rid-X by the D-Con Company and others) which if used in every home routinely would immediately reduce levels of nitrates escaping into the waterways. These microorganisms allow for maximum digestion of all nutrients within the septic system and keep maintenance to a minimum.

It should be noted that if communities adopt a phosphate ban coupled with the use of septic microorganisms, an immediate reduction of nutrification of surrounding waterways would be noticed.

Tentative Plan

1990: Begin discussions with companies involved. Investigate feasibility plan with county commissioners.

1991: Institute several test facilities using various toilet systems in question; conduct further investigations and research. Hearings on final plan; begin implementation.

1991: All homeowners presently using septic systems must begin to use nutrient-digesting organism supplements and be given literature in its use at the county level.

*Theoretically, if every homeowner in a big city such as Miami began using these microorganisms, most of the nitrates would be removed from public sewage before the wastewater even reached the treatment plant. Not only would this make sewage treatment easier and more effective but it would dramatically reduce the level of algae-promoting nitrates entering the marine environment via outfalls. **Use of these microorganisms as discussed coupled with towns and cities having phosphate bans would be far more effective in reducing nutrification of marine waters.**

1992: All new homes and large facilites to be constructed shall install and maintain a pollutionless, self-contained toilet or sewage system if a building permit is to be issued. All cost and maintenance of the systems would be the responsibility of the owner. All high-rise apartments, condominiums or skyscrapers may use a combination of pollutionless toilet systems in conjunction with large pollutionless systems such as Rotopack or in combination with an in-house, treatment plant providing in-house tertiary water treatment.

1995: All home and building constructed prior to 1970 shall convert over to pollutionless toilet systems as described.

By the year 2000: All building shall convert over to pollutionless toilet systems where applicable.

Note: The preceding plan as outlined is for informational purposes only. Commercial Products Research Inc., is presently not involved in this business or connected with any of the companies mentioned.

Attachment #1

Name: Patrick Yannatell

Statistics: Florida Keys property owner, taxpayer for 20 years. Full time resident in Islamorada for the past two years. President of Commercial Products Research Inc., Islamorada, Florida.

Personal History: Former Senior Scientist, Head of Diagnostic Microbiology Section of Hoffmann-La Roche Inc., a pharmaceutical company located in New Jersey. Holder of 12 patents on items ranging from Bacterial Identification Systems to Odor Controlling Systems to devices which detect polluted water.

Interests and Involvements: Ecologist, certified diver, marine historian, U.S.C.G. certified boat operator. Discovered and reported ecological disasters due to pollution to the New Jersey Legislature (see attachment A). Holder of public service commendation from the U.S. Coast Guard. Worked with N. J. Bureau of Marine Fisheries in the experimental implementation of various artificial reef programs (see attachment B). Lecture to school groups and civic groups regarding pollution, shipwreck history.

PRIDE
P.O. Box 1692
Islamorada, Florida 33036
Preservation of Our Right As Individuals To Discovery And Exploration

Patrick M. Yananton
Microbiologist
Environmental Committee
PRIDE Board of Directors
(Attachment #1)

Many people hear the word "Sanctuary", especially citizens not living in the Florida Keys and immediately believe that a sanctuary will cure all the environmental ills of the area.

It is a point of fact that the present sanctuary systems which occupy almost 50% of the entire reef system, including the most luxurious reefs in the Florida Keys, are experiencing multiple difficulties they cannot control. A Florida Keys National Marine Sanctuary plan will ignore many of these problems while exacerbating others. In addition, this plan would upset the present balance between free ocean and sanctuaries/parks creating economic hardship for many occupations.

1. The present sanctuaries in existence cannot resolve the greatest threat to reef ecosystems, which is water pollution from outside sources. Before today ends, more than 225 MILLION gallons of secondary treated, sometimes raw untreated sewage will be discharged from Miami outfall pipes alone. The nutrients released from these pipes just 3 miles off the beach, promote rapid algae growth, inhibit and destroy rapid coral growth, carry toxins, pesticides, heavy metals and can result in permanent reef destruction on a greater scale than any anchor or ship grounding.

Presently outbreaks of algae are occurring on some of the reefs in the existing sanctuary off Key Largo (see attachment #2). Attached is a scientific paper discussing the degradation of Carysfort Reef over the last 10 years. This reef, located on the northern border of the present Key Largo Marine Sanctuary, lies south of Miami in the Gulf Stream countercurrent which flows south. The paper discusses damage that could easily be related to sewage (attachment #3).

I have personally made observations from the air and have seen miles and miles of discolored water flowing south and inland towards Miami Beach from these outfall pipes.

The health of our most northern reefs will depend on actions taken by the Environmental Protection Agency as required by Section 302 of the Clean Water Act, ammended in 1987, which states, "Whenever new information indicates a negative change in environment due to previous policies of sewage discharge, the EPA Administrator can institute alternate effluent control strategies for point sources." We, the citizens of the Florida Keys, and PRIDE, are planning to present this

data to the EPA. We can have meaningful NOAA studies performed in Federal waters without having a Marine Sanctuary as was done in New Jersey during the fish kill of 1976. We have accumulated data on a variety of technology that can replace public sewage systems and stop marine nutrification.

2. **Present Marine Sanctuary plans cannot resolve non-point sources of pollution entering marine waters from populated areas of the Florida Keys.** Members of PRIDE will submit to our local commissioners for study a 10-year plan to phase out all antiquated septic systems. The antiquated systems will be replaced by modern, inexpensive, independently-owned, pollution-free toilet and septic systems that can be powered by solar or wind driven energy. A sample of the plan is attached for your examination and discussion (see attachment #4). The plan will be also applicable for all towns and cities that discharge pollutants into marine environments via public sewage systems.

3. **Present Marine Sanctuaries cannot deal with the volumes of nutrient-laden water coming from developments, farms, and other fertilizer run-off sources from Lake Okeechobee, Homestead through the Everglades and Florida Bay to our oceans.**

4. **Sanctuaries and marine parks in the Keys attract thousands of tourists who dive and snorkel every day and cause unintentional damage to the reefs.** Damage is occurring at Grecian Rocks and many other sites. I have attached the testimony of a charter boat captain from Key West who claims the majority of the coral damage is occurring under the mooring buoys which attract the most crowds (see attachment #5). The U.S. Department of Commerce directive allows for traditional uses of the areas by recreational user groups so long as their activities do not threaten the basic integrity of the site's resource value. Therefore, if Sanctuary rules were enforced divers and snorkelers should not be allowed in a Sanctuary (see attachment #6).

5. **Present Marine Sanctuaries DO NOT prevent ship groundings.** The most recent ship groundings occurred within sanctuary boundaries. We need improved Aids to Navigation off our reefs. Shipwrecks have occurred off the Florida Keys for the past 400 years and have left no permanent scars. **Reefs will always grow back IF, and only IF, water quality is good.**

6. **Present Marine Sanctuaries are helpless in the face of natural massive reef destruction such as hurricanes, predators, changes in water temperature and chemistry.** Reefs have been constantly changing, moving, dying and being reborn for millions of years in response to environmental conditions. The present Florida Keys islands are situated on dead coral. Reef dynamics can proceed only in healthy water.

YANANTON/PRIDE

7. Without a doubt, the present Sanctuary law, if extrapolated to the entire area of the Florida Keys will negatively affect the lives and finances of many occupations, varying from fishermen to marina operators to real estate sales, not just historic shipwreck salvors and tropical fish collectors. A negative financial multiplier effect of Sanctuary law off our entire islands will filter down to every life aspect in the Keys. The National Marine Sanctuaries Act states, "the Secretary shall consider negative income-generating activities and socioeconomic effects of Sanctuary designation" (see attachment #7).

8. The National Marine Sanctuaries Act states that, "because of questions of manageability, the maximum size will not exceed that of the largest marine sanctuary (the Channel Islands) of 1,252 square nautical miles."

The Florida Keys represent an enormous area of more than 2,000 square nautical miles -- almost 2 times the size of the Channel Islands. An area this size as discussed in the National Marine Sanctuaries Act becomes TOO unmanageable, unmaintainable and unenforceable. WHERE WOULD THE MONEY TO MANAGE THIS AREA COME FROM? New taxes? User fees? Licenses? Do we spend tax dollars and government budgets on flotillas of enforcement patrol boats OR do we focus our efforts and funds wisely on the No. 1 REAL ENEMY OF THE REEF, "CURING WATER QUALITY ILLS," only obtainable through non-sanctuary strategies?

US Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

Washington, D C 20593-0001
Staff Symbol
Phone:

DEPARTMENT OF TRANSPORTATION

U. S. COAST GUARD

STATEMENT OF

CAPTAIN JAMES R. WHITE

CHIEF, SHORT RANGE AIDS TO NAVIGATION DIVISION

OFFICE OF NAVIGATION SAFETY AND WATERWAY SERVICES

BEFORE

THE HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES

SUBCOMMITTEE ON OCEANOGRAPHY AND GREAT LAKES

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION

AND THE ENVIRONMENT

REGARDING

THE FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990

H.R. 3719

MAY 10, 1990

BIOGRAPHY

CAPTAIN JAMES R. WHITE
UNITED STATES COAST GUARD

Captain White is presently serving as Chief of the Short Range Aids to Navigation Division, Office of Navigation Safety and Waterway Services at Coast Guard Headquarters. In this capacity, he has program management responsibility for Waterways Management, 93,000 Federal and private aids to navigation, and implementation of vessel routing measures such as Traffic Separation Schemes and Areas to be Avoided. He is also the United States delegate to the International Maritime Organization Subcommittee on Safety of Navigation.

Captain White graduated from the United States Coast Guard Academy in 1967. Following assignments as navigator on the polar icebreaker USCG Cutter BURTON ISLAND (WAGB-283), and as Assistant Chief of the Communications Branch in the First Coast Guard District, Captain White attended graduate school at the University of Rochester where he received an MS in optics. He then served in various assignments in the Coast Guard Office of Research and Development, culminating with four years as the Chief of the Sensor Technology Branch, where he was responsible for development of several key projects including the AIREYE remote sensing system, the ship tethered radar aerostat, and the Search and Rescue Satellite System.

Captain White's military awards include the Coast Guard Meritorious Service Medal, and the Coast Guard Commendation Medal.

Captain White is a native of Hull, Massachusetts and is married to the former Victoria Roselando of Medford, Massachusetts. They have two children.

DEPARTMENT OF TRANSPORTATION
U.S. COAST GUARD
STATEMENT OF CAPTAIN JAMES R. WHITE
ON THE FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990
BEFORE THE SUBCOMMITTEES ON OCEANOGRAPHY AND GREAT LAKES
AND FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT
COMMITTEE ON MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES
MAY 10, 1990

GOOD AFTERNOON MR. CHAIRMAN AND MEMBERS. I AM CAPTAIN JAMES WHITE, CHIEF OF THE SHORT RANGE AIDS TO NAVIGATION DIVISION OF THE COAST GUARD'S OFFICE OF NAVIGATION SAFETY AND WATERWAY SERVICES. I AM PLEASED TO APPEAR BEFORE YOU TODAY TO PRESENT THE COAST GUARD'S VIEWS ON THE FLORIDA KEYS NATIONAL MARINE SANCTUARY BILL INTRODUCED BY CONGRESSMAN FASCELL.

I HAVE HAD THE PRIVILEGE OF VISITING THE KEY LARGO AND LOOE KEY NATIONAL MARINE SANCTUARIES AND SEEING FIRST HAND THE BEAUTIFUL CORAL REEFS AND VAST ARRAY OF LIVING PLANTS AND ANIMALS THAT RELY ON THE REEF FOR FOOD, SHELTER AND BREEDING SITES. IT IS TRULY A NATIONAL TREASURE AND SHOULD BE PROTECTED.

THE COAST GUARD RECOGNIZES THE ENVIRONMENTAL SENSITIVITY OF THE FLORIDA CORAL REEFS AND SUPPORTS THE INTENT OF THE BILL TO PROTECT THEM. AS YOU MAY KNOW, LAST FALL THREE COMMERCIAL VESSELS GROUNDED ALONG THE FLORIDA REEFS WITHIN THE BOUNDARIES OF THE KEY LARGO NATIONAL MARINE SANCTUARY AND THE FORT JEFFERSON NATIONAL MONUMENT WEST OF KEY WEST. WHILE NOT RESULTING IN POLLUTION, THE GROUNDINGS CAUSED CONSIDERABLE DAMAGE TO THE LIVING CORAL. VESSEL GROUNDINGS AND THE RISK OF OIL SPILLS FROM THOSE GROUNDINGS ARE A SERIOUS THREAT TO THE CONTINUED VITALITY OF THE REEFS.

31-627 0 - 90 - 3

THIS BILL WOULD PROTECT THE MARINE ENVIRONMENT OF THE FLORIDA KEYS BY DESIGNATING ONE LARGE SANCTUARY - THE FLORIDA KEYS NATIONAL MARINE SANCTUARY.

WHILE WE SUPPORT THE BILL'S INTENT, IT DOES RAISE SOME CONCERNS WHICH I WILL ADDRESS TODAY.

FIRST, THE BILL DESCRIBES THE SANCTUARY AREA AS CONSISTING OF ALL SUBMERGED LANDS AND WATERS WITHIN THE SEAWARD BOUNDARY OF THE TWELVE MILE TERRITORIAL SEA OF THE UNITED STATES. IN A DECEMBER 27, 1988, PROCLAMATION, PRESIDENT REAGAN EXTENDED THE U.S. TERRITORIAL SEA FROM THREE TO TWELVE NAUTICAL MILES FOR INTERNATIONAL PURPOSES.

IF THE INTENT OF THE BILL IS TO ENSURE THAT THE ENTIRE SANCTUARY WILL EXTEND TO THE FULL BREADTH OF THE 12 MILE TERRITORIAL SEA, THEN THE SANCTUARY SHOULD BE DESCRIBED AS "ALL WATERS WITHIN TWELVE NAUTICAL MILES FROM THE BASELINES OF THE UNITED STATES ESTABLISHED IN ACCORDANCE WITH INTERNATIONAL LAW."

THIS DESCRIPTION WOULD PLACE THE ENTIRE SANCTUARY WITHIN THE TERRITORIAL SEA AND WOULD AID ENFORCEMENT OF REGULATIONS ISSUED UNDER THIS BILL.

SECTION 6 OF THE BILL SEEKS TO REQUIRE THE SECRETARY OF TRANSPORTATION TO SUBMIT A PROPOSAL TO THE INTERNATIONAL MARITIME ORGANIZATION TO DESIGNATE THE FLORIDA KEYS NATIONAL MARINE SANCTUARY AS AN AREA TO BE AVOIDED BY COMMERCIAL SHIPPING.

THE COAST GUARD HAS ALREADY SUBMITTED A PROPOSAL TO THE INTERNATIONAL MARITIME ORGANIZATION FOR AN AREA TO BE AVOIDED OFF THE FLORIDA REEFS. WE RECOMMENDED THAT ALL VESSELS CARRYING CARGOES OF OIL AND HAZARDOUS MATERIALS AND ALL VESSELS GREATER

THAN 50 METERS IN LENGTH AVOID THE AREA. THE AREA TO BE AVOIDED BEGINS SOUTH OF MIAMI AND EXTENDS TO AND INCLUDES THE DRY TORTUGAS ISLANDS. THE AREA TO BE AVOIDED IS APPROXIMATELY TEN MILES OFF THE FLORIDA COAST AND APPROXIMATELY FIVE MILES OFF THE REEFS.

THE COAST GUARD WORKED WITH THE STATE OF FLORIDA TO DEVELOP A PROPOSAL FOR AN AREA TO BE AVOIDED OFF THE FLORIDA COAST TO ATTEMPT TO PREVENT LARGER VESSELS FROM RUNNING AGROUND AND DAMAGING THE CORAL REEFS. PUBLIC MEETINGS WERE HELD IN MIAMI AND KEY WEST TO GATHER INFORMATION AND PUBLIC VIEWS ON THE PROPOSAL. THE AREA TO BE AVOIDED PROPOSED TO THE INTERNATIONAL MARITIME ORGANIZATION ENCOMPASSES THE CORAL REEFS, BUT ALSO PROVIDES FOR CONTINUED ESSENTIAL LOCAL TRAFFIC THROUGH HAWK CHANNEL AS WELL AS ACCESS TO NECESSARY ANCHORAGE AREAS NEAR THE PORT OF KEY WEST. THESE LOCAL NEEDS WERE CLEARLY CONVEYED TO US BY THE PUBLIC AT THE MEETINGS.

THE COAST GUARD ALSO HAS SEVERAL TECHNICAL COMMENTS ON THE BILL.

SECTION 4(B)(1) DESCRIBES THE SANCTUARY BOUNDARIES IN TERMS OF THE 300-FOOT ISOBATH. FOR SEVERAL REASONS, SUCH AS PLOTTING THE SANCTUARY ON NAUTICAL CHARTS AND ENFORCEMENT OF THE REGULATIONS, IT IS PREFERABLE TO DESCRIBE THE BOUNDARIES BY LATITUDE AND LONGITUDE.

SECTION 5(A)(1) PROHIBITS VESSELS "USED IN THE TRADE OF CARRYING CARGO OR IN THE TRADE OF SERVICING OFFSHORE INSTALLATIONS" IN THE SANCTUARY. THESE TERMS ARE UNDEFINED. IT IS RECOMMENDED THAT THIS SECTION CONTAIN LANGUAGE SIMILAR TO THAT

OF SECTION 5(B), UNDER WHICH REGULATIONS RESTRICTING SPECIFIC VESSELS WOULD BE PROMULGATED. THE REGULATION COULD ADDRESS VESSEL OPERATION IN THE SANCTUARY ON THE BASIS OF TONNAGE, DRAFT, TYPE OF CARGO, OR OTHER APPROPRIATE FACTORS.

SECTION 5(A)(2)(A) ALLOWS VESSELS, WHICH MIGHT OTHERWISE BE PROHIBITED, TO OPERATE "IN A CHANNEL MAINTAINED BY THE COAST GUARD." THE COAST GUARD DOES NOT MAINTAIN CHANNELS; THE U.S. ARMY CORPS OF ENGINEERS DOES. THE COAST GUARD ESTABLISHES AIDS TO NAVIGATION TO ASSIST MARINERS IN NAVIGATION. IN THIS PROPOSED SANCTUARY, MANY AREAS MARKED BY AIDS TO NAVIGATION EXIST THAT DO NOT DEFINE CHANNEL BOUNDARIES. GENERALLY, THE AIDS MARK A PREFERRED WAY TO TRANSIT THE AREA, BUT DO NOT RESTRICT VESSELS TO A GIVEN AREA OR TRACK. IT IS THE OPERATOR'S RESPONSIBILITY TO USE CHARTS AND OTHER NAVIGATION TOOLS TO TRANSIT SAFELY. THE ENFORCEMENT OF THIS SECTION WITH THIS LIMITATION WOULD BE DIFFICULT, IF NOT IMPOSSIBLE. WE RECOMMEND THAT SECTION 5(A)(2)(A) BE DELETED. SECTION 5(A)(2)(B) PROVIDES SUFFICIENT AUTHORITY TO PROMULGATE APPROPRIATE REGULATIONS TO ACHIEVE THIS PURPOSE.

SECTION 5(B) AUTHORIZES THE SECRETARY OF COMMERCE TO ISSUE REGULATIONS PERTAINING TO VESSEL TRAFFIC IN THE SANCTUARY, IN CONSULTATION WITH THE COAST GUARD. WE RECOMMEND THAT THIS PROVISION BE AMENDED TO REQUIRE COAST GUARD CONCURRENCE (AS OPPOSED TO CONSULTATION) WITH ANY PROPOSED REGULATIONS AFFECTING VESSEL TRAFFIC.

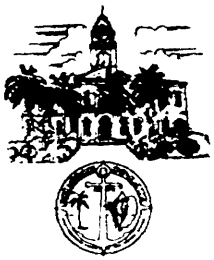
SECTION 5(B)(2)(A) REQUIRES REGULATIONS WHICH INCLUDE "BUFFER ZONES" SURROUNDING SPECIAL AREAS. WE INTERPRET THIS

PROVISION TO ABSOLUTELY PROHIBIT VESSELS USED IN THE TRADE DESCRIBED EARLIER. THE PRACTICAL EFFECT MAY BE TO CLOSE ROUTES VITAL TO WATERBORNE COMMERCE. THIS IS UNDESIRABLE. CUSTOMARY INTERNATIONAL LAW PROHIBITS COASTAL STATES FROM IMPOSING ANY REQUIREMENTS ON FOREIGN SHIPS WHICH HAVE THE PRACTICAL EFFECT OF DENYING OR IMPAIRING THE RIGHT OF INNOCENT PASSAGE. REGULATIONS IMPLEMENTING THE SPECIFIC PROVISIONS OF THE BILL SHOULD BE CONSISTENT WITH INTERNATIONAL LAW. IF THE NEED EXISTS FOR SPECIAL RULES OR RESTRICTIONS, THEY CAN BE INCLUDED IN THE REGULATIONS. ADDITIONAL PROHIBITIONS IMPOSED IN THE FORM OF "BUFFER ZONES" SHOULD NOT EXTEND BEYOND THE SANCTUARY BOUNDARY. WE DO NOT OPPOSE THE CONCEPT OF AREAS OF SPECIAL ECOLOGICAL SIGNIFICANCE OR SPECIAL NAVIGATIONAL HAZARD BEING DESIGNATED; HOWEVER, WE FEEL BUFFER ZONES ARE REDUNDANT.

SECTION 5(C) INCORPORATES BY REFERENCE THE ENFORCEMENT PROVISIONS OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT, 16 U.S.C. 1437. THIS SECTION PROVIDES FOR ANY AUTHORIZED PERSON TO SERVE A WARRANT OF ARREST ON BEHALF OF ANY COURT OF "COMPETENT" JURISDICTION. UNDER PRESENT PRACTICE, UNITED STATES DISTRICT COURTS ARE NOT PERMITTED TO ISSUE WARRANTS FOR SERVICE BEYOND THE BOUNDARIES OF THE STATES IN WHICH THE COURT SITS ACCORDING TO RULE 4 OF THE FEDERAL RULES OF CIVIL PROCEDURE. IN GENERAL, THOSE BOUNDARIES ARE THREE NAUTICAL MILES. IT WOULD BE ADVISABLE TO INCLUDE A PROVISION IN THIS BILL EXTENDING THE FEDERAL DISTRICT COURT'S JURISDICTION TO COINCIDE WITH THE TERRITORIAL SEA WITHIN THE MARINE SANCTUARY ESTABLISHED BY THE BILL.

THAT CONCLUDES MY STATEMENT. THANK YOU FOR THE OPPORTUNITY TO COMMENT ON THIS VERY IMPORTANT BILL. I WILL BE HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE.

COUNTY of MONROE
KEY WEST, FLORIDA 33040
(305) 294-4641



DOUGLAS M. JONES
Commissioner Dist.3
310 Fleming Street
Key West, Florida 33040
(305) 294-8288

May 4, 1990

Mr. Dennis M. Hertel, Chairman
Subcommittee on Oceanography
and Great Lakes
Mr. Gerry E. Studds, Chairman
Subcommittee on Fisheries and
Wildlife Conservation and the Environment
House Annex II, Room 532
Washington, DC 20515

RE: FLORIDA KEYS NATIONAL MARINE SANCTUARY
ACT OF 1990
Written Statement

Ladies and Gentelmen:

I am representing about Seventy-eight thousand five hundred (78,500) people in the Florida Keys. As I am hear before you today I feel somewhat like the Chinese student that was standing in front of the tank in the Tiananmen Square in China realizing that I am at the mercy of the driver of the tank...I can scream, I can holler, I can cry, I can beg, and I can threaten, but none of those things will help me without your consideration and mercy.

I would hope that these Subcommittee's would be part of the solution and not part of the problem for Monroe County. What we need is not a Sanctuary what we need protection of our reef by moving the freighter lines 20 miles further off shore, better buoy systems for careful anchorage by anyone visiting the reefs, and biologist to help treat the disease's on the reef....you don't have to take us to do that...you don't have to adopt the child to treat it...you can be the Doctor in this case and help us in partnership to save our reef from any degradation.

We are desperately trying and accomplishing the tremendous fete of stopping the devastation on our land in Monroe County of which is a very small percentage (about 6%) of land. Ninty Four Percent(94%) of our land is already in your hands, States

hands or some military installation. We want to have the control in preventing any degradation or polluting to the reef. Do not take the only resource that we have left... out of our hands and out of our destiny to now where you are in control of it and not us. In twenty years or less unfortunately for you and for us...you will not be here with your wisdom and ability to determine what is right from wrong from the fresh battle that is being fought here today and listening to all sides...it will all be quite, and it will be left to perhaps to a sole bureaucrat in the future years from now to determine the fate of Monroe County. I do not feel that you or I would even consider that as being a possibility in the future. But, knowing that if you form a Sanctuary those powers are there, in place to change all of these rules that you will be writing here today.. Our history is full of agreements that were placed in writing and agreed upon in both groups and then broken or changed on down the line. All we have to do is to think back to the past of the treaties with the Indians or more recently in this decade of the Everglades National Park where the fisherman in the upper Keys were told in writing that they would never be banned from that park...well today they are banned. Based on this past history is why we are here today to plead that you do not do this again to us.....don't adopt us....help us....don't take us over.

If your concerns are that Monroe County is not taking the lead in solving it's problems let me assure you this is not the case. Back in 1986 Monroe County adopted a land us plan. We were put under an area of critical concern, and we have moved forward into that process and will be the first coastal County in the State of Florida to do so. Our total Growth Plan will be excepted by the State of Florida and all of it's agencies. Today, weather we build a fence or a major development all of our permits go through a process of screening by said agencies and we are working hand in hand with the Department of DCA, as well as Federal Agency in this development. Our completed plan will stop any pollution into our near shore waters and will be properly balanced between nature and man in where we all can live in harmony. We are now solving these problems that have plagued us in the past. Prior politicians have not addressed these concerns please do not hold us responsible for the actions of past politicians. This County has the capability to

continue to solve our problems.

This reef and Ocean bottom up to it are vital to our existence, and not only to the fishing industry but all of our livelihoods here in Monroe County.

In closing my final analogy is if this Sanctuary Bill passes what this would be like for Monroe County.. it would be like telling the citizens of Monroe County that to protect them you are going to drop a Nuclear bomb on Cuba so that you can protect them from the evils of Communism, but unfortunately in the process... the fall out and the shock waves would blow us off the islands and we would no longer be here to enjoy what they saved us for.

Thank you for your time and consideration.

Sincerely,

Douglas M. Jones
Board of County Commissioner
The Florida Keys
Monroe County, Florida

DMJ/mlj

Henry Feddern, PhD
Scientific Liason
Florida Marine Life Association
156 Dove Ave.
Tavernier, Fla. 33070
10 May 1990

H.R. 3719 (SUGGESTED CHANGES)

101st Congress
1st Session

To establish the Florida Keys Coral Conservation Area Act, and for other stated purposes.

IN THE HOUSE OF REPRESENTATIVES

A BILL

To establish the Florida Keys Coral Conservation Area Act, and for other stated purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Florida Keys Coral Conservation Area Act".

SECTION 2. FINDINGS.

The Congress finds the following:
(1) The Florida Keys extend for approximately 220 miles southwest from the southern tip of the Florida peninsula.
(2) Adjacent to the Florida Keys land mass are located spectacular tropical marine environments unlike anywhere else in the continental United States.
(3) These environments include extensive coral reefs and other habitats that support a variety of valuable sport and commercial fisheries. They also have value for ecology, history, research, education and recreation, each of which is important to the economic and environmental health of the region and giving it special national significance.
(4) Establishment of the Key Largo National Marine Sanctuary, the Looe Key National Marine Sanctuary, Biscayne National Park, Fort Jefferson National Monument, and

Pennekamp State Park have been relatively successful in allocating their resources among several user groups, but studies have shown that they are not capable of preventing coral degradation due to vessel groundings or water pollution. The reason is that these management units do not have the appropriate authority to do so.

(5) Recent vessel groundings along the reefs of the Florida Keys within the boundaries of the Key Largo National Marine Sanctuary and Fort Jefferson Monument west of Key West have graphically demonstrated this failure, and represent one threat to the vitality of the marine environments of the Florida Keys. Another threat is a potential for oil spills due to exploration, drilling and transportation. A third threat is the subtle long-term effect of polluted water on coral health and growth; a threat that is just now being realized. This pollution comes from a variety of sources both within and outside of this Conservation Area.

(6) The Congress shall take action to protect the existing Parks and Sanctuaries, as well as the rest of the area, from these three fundamental problems, by developing and establishing a comprehensive Florida Keys Coral Conservation Area Act that plugs the gaps in existing management authority, knowledge, and regulations, without overlapping the authority of existing management agencies.

(7) The Agencies of the United States must cooperate fully to achieve the necessary protection to reduce the significant threats to live corals and enable them to flourish as they have in the past.

SECTION 3. POLICY.

It is the policy of the United States to conserve the commercial, recreational, and historical uses and values of the Florida Keys marine environments as well as the wildlife, coral reefs, and other aspects of the Conservation Area ---

(1) by designating a comprehensive Florida Keys Coral Conservation Area Act.

(2) by restricting certain commercial vessel traffic within the Conservation Area.

(3) by requiring international negotiations to designate the Conservation Area as an area to be avoided by commercial vessel traffic.

(4) by prohibiting hydrocarbon exploration and drilling in the Conservation Area.

(5) by studying, developing regulations, and regulating other threats to water quality, whether the threats originate within or outside of the conservation area.

(6) by developing educational programs and displaying historical artifacts from the rich human and natural history of the land and water areas.

SECTION 4. DEFINITIONS.

(1) Conservation: Wise and fairly-proportioned use of the resource by all user groups so that the resource continues to exist in a healthy state. Restrictions on any use are to be based on scientific facts that document significant effects on the environment.

(2) Coral: Live corals of the orders Scleractinia (stony coral) and Milleporina (fire coral).

(3) Significant water pollution: Addition of enough substances to water to change the ecology and character of an area.

(4) Commercial Fishery: A fishery engaged in for a profit, including the Marine Life Fishery and all of its components including Live Rock and Gorgonians.

SECTION 5. DESIGNATION.

(1) The area described in section 6 is to be designated as the Florida Keys Coral Conservation Area (hereinafter in this Act referred to as the "Conservation Area") if the data gathered after full public hearings and input at the local level determines the need, usefulness, appropriateness, and feasibility of the legislation. Full public participation from start to finish in developing management regulations is required.

(2) The Act shall be established only if sufficient funds are budgeted and appropriated for continued effective operation of this Act.

SECTION 6. AREA.

The area referred to in the Act consists of all submerged lands and waters within the seaward boundary of the 12-mile territorial sea of the United States located ---

(1) in a general southwesterly direction along the Atlantic Ocean side of the Florida Keys from shore to the 300 foot isobath; and

(2) between the northeastern-most boundary of Biscayne National Park and the western-most boundary of the Fort Jefferson National Monument.

SECTION 7. AREAS IN BOUNDARIES OF STATE OF FLORIDA.

The designation under section 6 will not take effect with respect to an area located within the seaward boundary of the State of Florida if not later than 90 days after the date of the enactment of this Act the Governor of the State of Florida notifies the Secretary in writing that the designation of that area is unacceptable. Not later than 30 days after receiving such a notification, the Secretary shall publish and transmit to the Congress the boundaries of the Act, as modified in accordance with the notification.

SECTION 8. PROHIBITIONS.

(1) No person shall operate in the Conservation Area a vessel which is used in the trade of carrying cargo or in the trade of servicing offshore installations unless proven that such operation does not damage the live corals.
(2) No person shall drill, explore for, or extract any hydrocarbons from the Conservation area.
(3) No person or government or corporate entity shall cause water degradation by discharging either directly or indirectly into the water any substances causing significant water pollution.

SECTION 9. LIMITATIONS.

(1) This Act shall not have jurisdiction over any commercial or sport fishery nor any component of any fishery nor develop and enforce regulations that regulate fishing by means of area, time, gear, product or other manner in the Conservation Area.
(2) This Act shall not have jurisdiction over any other activity in the Conservation area not expressed in Section 8.
(3) All regulations developed and enforced under this Act shall be based on scientific evidence and fact, in order to achieve the greatest diversity of use and benefits to Man, at tne lowest cost, within the context of conserving the coral.
(4) All regulations shall be detailed enough to eliminate variations in interpretation from one enforcement unit to another. If a difference of opinion develops over interpretation, then the regulation will be re-written to eliminate the uncertainty (or an official opinion will be issued), and the revision (or opinion) will be sent out for public input on the exact intent and meaning of the regulation in question.

SECTION 10. PENALTIES AND ENFORCEMENT.

(1) **CIVIL PENALTY:** Any person subject to the jurisdiction of the United States who violates this Act is subject to a civil penalty appropriate to the violation.
(2) **ENFORCEMENT:** The Secretary may enforce the provisions of this Act through the Coast Guard and the Florida Marine Patrol, as appropriate.

SECTION 11. INTERNATIONAL NEGOTIATIONS.

The Secretary of Transportation, in consultation with the Secretary of State, shall prepare and submit a proposal to the International Maritime Organization to designate the

Florida Keys Coral Conservation Area as an "Area to be Avoided". The Secretary of Transportation shall ensure that the proposal would not result in undue interference with enjoyment of the Conservation area for recreational, commercial or fishery purposes.

Henry Fiddler

POSITION PAPER: H.R. 3719, "FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990"

SUBMITTED TO:

SUBCOMMITTEE ON OCEANOGRAPHY AND GREAT LAKES

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION AND THE ENVIRONMENT

PRESENTED BY:

BIG PINE JAYCEES

LOWER KEYS CHAMBER OF COMMERCE

MONROE COUNTY C.A.R.E.S., INC.

LOWER KEYS CONTRACTOR'S ASSOCIATION

MARATHON AND LOWER KEYS ASSOCIATION OF REALTORS

Big Pine Key Jaycees
P.O. Box 223
Big Pine Key, Florida 33043

May 6, 1990

To: Dennis M Hertel, Chairman
Subcommittee on Oceanography
and Great Lakes

To: Gerry E. Studds, Chairman
Subcommittee on Fisheries and
Wildlife Conservation and the
Environment

This letter is to certify that Peter J. Ryan, Executive Vice President of Monroe County C.A.R.E.S., Inc., has full authorization to speak for and represent the Big Pine Key Jaycees. The position paper he is presenting to you this day carries the endorsement of the Big Pine Key Jaycees

We urge you to carefully consider this document as it represents the views of a wide range of young citizens and business people in our community. Thank you very much.

Sincerely,

Gregory Z. Scott
President, Big Pine Key Jaycees

cc:file

LOWER KEYS
CHAMBER OF COMMERCE
MM 31, P.O. Drawer 511, Big Pine, Florida 33043

May 6, 1990

To: Dennis M Hertel, Chairman
Subcommittee on Oceanography
and Great Lakes

To: Gerry E. Studds, Chairman
Subcommittee on Fisheries and
Wildlife Conservation and the
Environment

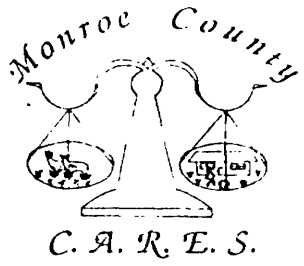
This letter is to certify that Peter J. Ryan, Executive Vice President of Monroe County C.A.R.E.S., Inc., has full authorization to speak for and represent the Lower Keys Chamber of Commerce. The position paper he is presenting to you this day carries the endorsement of the Lower Keys Chamber of Commerce. We urge you to weigh our concerns carefully as this document represents the views of the businesses of our community. Thank you very much.

Sincerely,

Garry A. Sievers

Garry A. Sievers
President, Lower Keys Chamber of Commerce

cc:file



Monroe County C.A.R.E.S.

Concerned Area Residents for Environmental Sanity

P.O. Box 2009, Big Pine Key, FL 33043
(305) 872-4432

MAY 10, 1990

TO: CHAIRMAN, SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION

CHAIRMAN, SUBCOMMITTEE ON OCEANOGRAPHY AND THE GREAT LAKES

This letter is to certify that Peter J. Ryan, Executive Vice President of Monroe County C.A.R.E.S., Inc., has full authorization to speak for and represent that organization. The position paper he is presenting to you this day carries the endorsement of C.A.R.E.S. I urge you to weigh our concerns carefully as this document represents the views of several important segments of our community. Thank you very much.

Sincerely,

Nick Riggio

Nick Riggio

President, Monroe County C.A.R.E.S., Inc.

Lower Keys Contractors Association, Inc.
Route 1 Box 843
Big Pine Key, Florida 33043

872-2033
872-9520

May 6, 1990

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON MERCHANT MARINE AND FISHERIES
RM. 1334 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515-6230

Dear Committee Members:

This letter is to certify that Peter J. Ryan, Executive Vice President of Monroe County C.A.R.E.S., Inc., will be speaking to you in behalf of our organization, Lower Keys Contractors Association. The position paper he will be presenting to you carries the endorsement of the L.K.C.A.. I urge you to weigh our concerns carefully, as this represents not only the views of our organization, but the views of several important segments of our community. Thank you very much.

Sincerely,

Brooks Thommes

Vice-President of Lower Keys Contractors Association, Inc.

BWT/srt

REALTOR®

Marathon & Lower Keys
Board of REALTORS®, Inc
P O BOX 864
MARATHON, FLORIDA 33050

May 4, 1990

Hon. Dennis M. Hertel, Chairman
Subcommittee on Oceanography and
Great Lakes
U.S. House of Representatives
Committee on Merchant Marine & Fisheries
Room 1334, Longworth House Office Bldg.
Washington, DC 20515-6230

Hon. Gerry E. Studds, Chairman
Subcommittee on Fisheries and Wildlife
Conservation and the Environment
U.S. House of Representatives
Committee on Merchant Marine & Fisheries
Room 1334, Longworth House Office Bldg.
Washington, DC 20515-6230

Gentlemen:

This letter authorizes Peter J. Ryan, Executive Vice President of Monroe County C.A.R.E.S., Inc. and a member of our Association to speak for and represent the Marathon and Lower Keys Association of REALTORS, Inc. on May 10, 1990, before the Joint Subcommittees.

The position paper he is presenting to you is endorsed and supported by the Marathon and Lower Keys Association of REALTORS, Inc. as well as many other important segments of our community.

The Marathon and Lower Keys Association of REALTORS, Inc. is adamantly opposed to H.R. 3719 and any National Marine Sanctuary proposed therein. We believe there are reasonable, intelligent solutions to prevent further ship groundings in sanctuaries and/or waters off the Florida Keys other than H.R. 3719. Therefore, we ask you to listen carefully to our concerns and suggestions.

Thank you for your attention.

Sincerely,

MARATHON AND LOWER KEYS ASSOCIATION OF REALTORS, INC.

Shirley Mart Benson

Shirley Mart Benson, CRS, GRI, REALTOR
PRESIDENT

As directed by Resolution of the Board of Directors on May 3, 1990

POSITION PAPER: H.R. 3719, "FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990"

MAY 10, 1990

Mr. Chairman, Members of the Committee:

My name is Peter J. Ryan. As executive Vice President of Monroe County C.A.R.E.S., I have the distinct privilege of presenting a position paper to you today which carries the endorsement of the Big Pine Jaycees, the Lower Keys Contractor's Association, the Lower Keys Chamber of Commerce, the Marathon and Lower Keys Association of Realtors, and Monroe County C.A.R.E.S., Inc.

We cannot support the creation of the Florida Keys National Marine Sanctuary as proposed in H.R. 3719. The sheer lack of substance within this Bill, the absence of provisions for the protection of commercial fishermen, tropical fish collectors, treasure salvors, recreational fishermen and divers, marine construction operations; along with the City of Key West's traditional offshore anchorage, it's fledgling cruise ship trade, ship chandler services, and vital supply routes for both fuel barges to it's emergency back-up power plant; and black oil, diesel and jet fuel tankers for the Boca Chica Naval Air Station and Navy Fuel Farm render this proposal, in our view, unworkable.

One of the primary goals of this Bill, prevention of ship groundings on the reef, clearly remains unresolved as such National Sanctuary or

Monument status had no deterrent effect whatever on the M/V Alec Owen Maitland, M/V Marvo Vetranic, M/V Elpis, or on the M/V Wellwood when these vessels ran aground on the reefs which already carried such designations.

Similarly, though a stated goal of the 'National Marine Sanctuary Program Development Plan' is to "Promote and coordinate research to expand scientific knowledge of significant marine resources and improve management decision making", recent reports indicate that such designation tends to discourage independent research due to the increased difficulty in obtaining permits. In one case, a prominent scientist with outside funding was refused a permit during the early 1980's to conduct work on the long-spined sea urchin 'Diadema', apparently because the research was not consistent with management objectives. Several weeks later the entire population of urchins (95-99%) were destroyed as part of a Carribbean-wide die-off, and thus a chance to document pre-die-off population levels and activities was lost forever. In addition, the current lack of research facilities in close proximity to existing Sanctuaries which could be used by independent scientists speaks to the low priority assigned such work.

We believe there are many specific, effective and economically feasible actions which can be taken by the Federal Government to protect this resource without resorting to such a huge bureaucratic overlay and it's attendant costs to the taxpayer. To that end we respectfully suggest the following measures:

1) Have the United States delegates to the International Maritime Organization seek designation of the Florida Keys Reef Tract as an internationally recognized "Area To Be Avoided".

2) Extend the territorial sea and the federal district court jurisdiction to 12 miles offshore from the current three-mile limit.

3) Implement a minimum depth buffer zone around existing Sanctuaries and National Monuments.

4) Mandate that all vessels carry current, local navigational charts.

5) Require the U.S. Coast Guard to begin a comprehensive review of the aids to navigation system in the Keys for the purpose of making specific areas for commercial shipping lanes along the reef tract with high-intensity light beacons, radar reflectors, low-frequency VHF 'WARNING' transmitters, red sector mechanisms and deep-moored coastal buoys.

6) Create a coordinated Marine Traffic Control system from Miami to the Dry Tortugas comprised of Radar, Loran C, Sat/Nav, Coastal Pilots and the aforementioned aids to navigation.

In conclusion, the people I represent here today recognize and appreciate the good intentions of our distinguished Representative Dante Fascell. Yet, as the public tries to sort through the confusion generated by this Bill and the companion Legislation introduced in the Senate on March 7 of this year (S. 2247), those of us who earn our living from the reef; who depend on it's vitality for our very survival; and who call those islands 'home'; We worry. We worry that all the promises, all the assurances we hear today will fade from memory down the road and that in a county where the Federal and State Governments already control some 95% of the land, we may one day be told that our access to and existence near a Florida Keys National Marine Sanctuary is 'not consistent with current management objectives'. Thank you for letting me speak to you today.

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Marathon & Lower Keys
Board of REALTORS®, Inc.
P O BOX 864
MARATHON FLORIDA 33050

A RESOLUTION IN OPPOSITION TO THE CREATION OF A FEDERAL/NATIONAL MARINE SANCTUARY OFF THE FLORIDA KEYS AS PROPOSED IN H.R. 3719

WHEREAS, national sanctuary of Monument status had no deterent effect on the M/V Alec Owen Maitland, M/V Mavro Vetranic, M/V Elpis, or on the M/V Wellwood when said vessels ran aground on reefs adjacent to the Florida Keys; and

WHEREAS, H.R. 3719 is so broad in its scope that no provisos or protections are afforded the citizenry of Monroe County, Florida, the Commercial Fishing Industry, the Sportfishing and Diving Industries, the Tourist Industry, or those engaged in tropical fish collecting and treasure salvaging; and

WHEREAS, without adequate protections and safeguards to allow the continuation of the above referenced industries, said industries can be decimated through the issuance of new and continued restrictive regulations from the Secretary of Commerce, Department of Interior, National Oceanic and Atmospheric Administration and/or from the Office of Coastal Zone Management - Sanctuary Programs Office; and

WHEREAS, H.R. 3719 could be devastating to the Port of Key West, its traditional anchorage, its fledgling cruise ship trade and ship chandler services; and contains no alternative provisions for tanker traffic supplying jet fuel for Boca Chica Naval Air Station; and

WHEREAS, there is no consideration for City Electric's back-up power plant which gets its fuel from Miami in barges towed at slow speeds through Hawks Channel; and

WHEREAS, no size criteria for commercial vessels are specified in H.R. 3719 and, therefore, cargo, supply and work barges could be prohibited; barges which are essential for certain offshore navigational aid repairs, beach renourishment programs, dock repairs, and emergency supply routes should a bridge wash out during a hurricane; and

WHEREAS, such restrictive regulatory controls would seriously depress property values throughout Monroe County if the incentives such as fishing, diving and water sports for living and visiting these islands are absent; and

WHEREAS, a more effective method of reef protection could include the following:

1) Implementation of a minimum depth buffer zone around existing sanctuaries and National Monuments;

2) Upgrading and increasing the number of Coastal Buoys and aids to Navigation to include:

a) Higher intensity light beacons;
b) Radar reflectors;
c) low frequency VHF transmitters broadcasting warnings;
d) Deep-moored coastal buoys directly offshore from intermediately spaced lights marking a 2-mile buffer zone;
e) Red sector mechanisms be reinstalled in all reef lights.

3) Creation of a coordinated marine traffic control system from Miami to the Dry Tortugas comprised of Radar, Loran C, Sat/Nav, Coastal Pilots, and the aforementioned aids to navigation.

NOW, THEREFORE,

BE IT RESOLVED by the Board of Directors of the Marathon and Lower Keys Association of REALTORS, Inc. that it cannot support and, in fact, adamantly opposes the creation of a Federal/National Marine Sanctuary as proposed in H.R. 3719.

This resolution shall go into effect immediately upon its passage and adoption and authentication by the signature of the President.

Passed and adopted by the Board of Directors of the Marathon and Lower Keys Association of REALTORS at a meeting held this 3rd day of May, 1990.

Shirley Mort Ranson, CRS, CRI
President
MARATHON AND LOWER KEYS ASSOCIATION OF REALTORS, INC.

Sarah Carr Greene, Secretary

Project ReefKeeper

For the Protection of Coral Reefs and their Marine Life

TESTIMONY OF

PROJECT REEFKEEPER
AND THE
AMERICAN LITTORAL SOCIETY

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY AND THE GREAT LAKES
AND THE
SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION
AND THE ENVIRONMENT

COMMITTEE ON MERCHANT MARINE AND FISHERIES
U.S. HOUSE OF REPRESENTATIVES

ON

H.R. 3719
THE FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990

MAY 10, 1990

16345 West Dixie Highway, Suite 1121 / Miami, FL 33160 / (305) 945-4645
— an affiliate of the American Littoral Society —

My name is Alexander Stone. I am the Executive Director of Project ReefKeeper, a national affiliate of the American Littoral Society specializing in the protection of coral reefs and the wise use of their resources.

Project ReefKeeper has extensive analysis experience regarding the effects on the Florida Keys coral reef ecosystem of policies of the Minerals Management Service, Environmental Protection Agency, National Marine Sanctuaries Program, the federal Fishery Management Councils and state agency equivalents. The combined professional expertise of our Scientific Advisory Panel covers reef ecology, marine fisheries, marine water quality, coral physiology, marine protected areas management, and more.

My testimony addresses H.R. 3719 and the proposed establishment of the Florida Keys National Marine Sanctuary.

Sanctuary Designation

Project ReefKeeper and the American Littoral Society staunchly support the designation of a Florida Keys National Marine Sanctuary encompassing the entire Florida Keys Coral Reef Tract, and providing comprehensive management of its resources as proposed in Senate Bill S. 2247.

A Unique Marine Area

We support a finding that these marine environments are uniquely significant. We present documentation from the Minerals Management Service (Exhibit A), the South Florida Regional Planning Council (Exhibit B), and the US Fish and Wildlife Service (Exhibit C) which establish the Florida Keys Coral Reef Tract as the only shallow-water coral reef system in the United States.

Distinctively unique natural features and resources are found throughout the Florida Keys Reef Tract. A few examples are the French Reef Caverns off Key Largo, the Conch Reef Wall and Pillar Coral Reef off Islamorada, Alligator Reef's giant brain corals off Long Key, Sombrero Reef's fore reef canyons off Marathon, the staghorn coral fields off the Dry Tortugas -- and many more sites too numerous to mention. Each of these unique features individually merits sanctuary designation -- cummulatively so does the entire Florida Keys Reef Tract.

This nation does not have "too much" protected coral reef; the small fraction that is protected is not enough to meet the country's need and responsibility to protect this ecosystem.

An Area of Special National Significance

Project ReefKeeper supports a finding that these marine environments are nationally significant. To document that active concern for coral reef protection is nationwide, we present a listing of our own 73-group ReefKeeper Network and a listing of 72 organizations with a combined membership of over 8 million that have recently banded together to protect the Flower Garden Banks coral reefs.

The even more spectacular Florida Keys coral reefs belong to the entire nation and should be preserved and protected for the longterm benefit and enjoyment of the entire nation -- notwithstanding the protests of a few consumptive users, or the lack of vision of some local politicians.

An Area With Extensive Resource Values

We support a finding that these unique marine environments are richly endowed with every natural resource value specifically intended for comprehensive management through the National Marine Sanctuaries Program -- and we present documentation from the Minerals Management Service and U. S. Fish and Wildlife Service (Exhibit C page 4 - 6)to that effect.

We disagree with the contention that sanctuary designation would hurt the local economy and tourism. Quite the contrary is true. It is precisely the Florida Keys areas nearest existing sanctuaries that now enjoy the healthiest tourist economy. As one indication of this economic health, we present a comparative listing of Florida Keys Dive Centers (Exhibit F). Forty-five percent of all listed dive centers service the small fraction of the Florida Keys Reef Tract within existing sanctuaries.

An Area of Spectacular Biological Diversity

Project ReefKeeper supports a finding that these sensitive marine environments contain literally thousands of species, an unparalleled marine biological diversity equivalent to that of a tropical rain forest. We present documentation from the Minerals Management Service (Exhibit A), U. S. Fish and Wildlife Service (Exhibit C), and National Marine Sanctuaries Program (Exhibit G) to that effect.

BASED ON THE FINDINGS ABOVE, WE RESPECTFULLY URGE THE COMMITTEE TO SUPPORT DESIGNATION OF THE FLORIDA KEYS NATIONAL MARINE SANCTUARY AS A UNIQUE MARINE AREA OF SPECIAL NATIONAL SIGNIFICANCE.

An Area Under a Variety of Environmental Threats

Project ReefKeeper supports a finding that these fragile marine environments are threatened with potentially irreversible damage and loss from several onshore and offshore impact sources, including vessel groundings, hydrocarbon exploration, marine water pollution, fishing overexploitation, and visitor anchor damage.

Vessel Groundings

Vessel grounding destruction of coral reef habitat in the Florida Keys is a matter of painful record. National marine sanctuary designation is necessary to complement and cover gaps in existing Coast Guard and other regulatory authority.

It is only through sanctuary designation that funds from fines and liability awards resulting from groundings can be used to mitigate coral reef damage and increase enforcement. Funds from groundings outside a marine sanctuary -- even in a national park -- cannot be so applied and must go into the general fund.

Sanctuary opponents point out that recent freighter groundings ocurred in Key Largo National Marine Sanctuary and Fort Jefferson National Monument. But that does not prove that sanctuary designation won't deter groundings.

Study of an area chart (Exhibit H) shows that the topmost and bottommost sections of the Florida Keys Reef Tract are under Sanctuary or National Park jurisdiction. However, an enormous regulatory gap in between, exceeding 100 miles, tempts vessel captains to risk "cutting the corners" to hug the unregulated and exposed midsection of the reef tract.

What recent groundings actually prove is that only sanctuary designation of the entire Florida Keys Reef Tract will effectively deter groundings through enforcement of a prohibition on specific types of vessel traffic within the sanctuary.

Offshore Oil

Only Congressional intervention through the annual appropriations process has prevented offshore oil exploration within the zone of influence of the Florida Keys Reef Tract. Offshore oil operations could have devastating impacts on coral reefs, and we present the most recent documentation from the Minerals Management Service (Exhibit A) that details those impacts.

Unfortunately, Minerals Management Service lease sale guidelines focus on large scale planning areas and are incapable of

considering the environmental sensitivity of a rare and discrete area such as the Florida Keys Reef Tract. Project ReefKeeper submits documentation from the Minerals Management Service (Exhibits C, I) explicitly to that effect.

It is imperative that this regulatory gap be corrected and the Florida Keys coral reefs be protected. Designation of a Florida Keys National Marine Sanctuary can achieve that by prohibiting mineral and hydrocarbon exploration within the sanctuary.

Marine Water Pollution

We propose and support a finding that reduced water quality, and particularly nutrient pollution, is one of the most serious longterm threats to the vitality and survival of the Florida Keys Reef Tract. We present documentation from the Florida Department of Natural Resources (Exhibit J) and from the National Undersea Research Program (Exhibit K) specifically to that effect.

Project ReefKeeper presents documentation from the Florida Department of Community Affairs (Exhibit L) indicating persistent local county unwillingness or inability to address onshore sources of marine pollution. We also present documentation from the Florida Department of Environmental Regulation (Exhibit M) indicating that both that state agency and EPA rulemaking are not -- and possibly cannot -- address the special and area-specific water quality management needs of the Florida Keys Reef Tract.

Designation of a Florida Keys National Marine Sanctuary would provide a vital opportunity to protect these irreplaceable marine environments by addressing this water quality management gap within the sanctuary's comprehensive management plan. To achieve this, the sanctuary would require jurisdiction over onshore discharges into sanctuary waters. Therefore, Project ReefKeeper strongly recommends that sanctuary boundaries include all submerged lands and waters seaward of the Florida Keys shoreline.

Opponents of this sanctuary designation very adamantly contend that the existing Key Largo and Looe Key National Marine Sanctuaries have failed to protect coral reefs within their boundaries from water pollution. These opponents are missing the point. Existing boundaries for those two sanctuaries do not provide sanctuary management with enforceable jurisdiction over polluting discharges from onshore. Inclusion of these existing sanctuaries within the recommended boundaries of a new Florida Keys National Marine Sanctuary would.

Fishing Overexploitation

Project ReefKeeper proposes and supports a finding that the tropical fisheries associated with these marine environments are being seriously depleted, with many species deteriorating steadily towards possible stock collapse. We present documentation from the South Atlantic Fishery Management Council (Exhibit N) and from the Gulf of Mexico Fishery Management Council (Exhibit O) indicating inadequate spawning stocks and anticipated loss of reef fish genetic diversity.

Additionally, there are absolutely no federal regulations managing the harvest of the tropical aquarium fish so characteristic of these coral reefs.

It is not realistic to expect the regional multi-state fisheries management regime of the federal Councils to tailor regulations or priorities to fit the unique situation of the Florida Keys Coral Reef Tract.

Only a Florida Keys National Marine Sanctuary designation, through its comprehensive management plan, can address these concerns by complementing fishery management council regulations without unduly interfering with regional fisheries management regimes and priorities.

BASED ON THESE FINDINGS, WE RESPECTFULLY URGE THE COMMITTEE TO SUPPORT DESIGNATION OF THE FLORIDA KEYS NATIONAL MARINE SANCTUARY AS THE MOST VIABLE MEANS OF COMPLEMENTING DIVERSE EXISTING REGULATORY AUTHORITIES AND PROVIDING VITALLY NEEDED COMPREHENSIVE MANAGEMENT FOR THE FLORIDA KEYS CORAL REEF TRACT AND ITS SPECIALLY SIGNIFICANT RESOURCES.

Sanctuary Designation a Proven Solution

Marine sanctuaries have proven to be very effective at protecting coral reef resources, within the limitations imposed by jurisdictional boundaries and sanctuary management plans. We submit documentation from the 1989 Coastal Zone Symposium (Exhibit P), showing the success of Looe Key National Marine Sanctuary at achieving its management plan objectives.

Project ReefKeeper urges this Committee to provide the statutory framework for the Florida Keys National Marine Sanctuary that will make it possible for it to implement comprehensive management and attain broad resource protection objectives.

Specific Recommendations on H.R. 3719

Our specific recommendations regarding H.R. 3719 are:

- Make necessary substantive changes to amend H.R. 3719 into a companion bill to S. 2247.
- Set sanctuary boundaries to include the entire Florida Keys Reef Tract seaward from the Florida Keys shoreline, including existing sanctuaries, to address effectively water pollution and vessel grounding impacts.
- Implement comprehensive management to address all onshore and offshore impacts by complementing existing regulatory authority.
- Require comprehensive management plan completion within 30 months of bill enactment, to assure timely implementation of Congressional intent.
- Implement usage zone management to provide reasonable access to the sanctuary for all compatible uses, while safeguarding key natural features and longterm resource values.
- Define compatible uses as all uses not found to be incompatible, to minimize unwarranted use restrictions.
- Prohibit commercial vessel traffic, mining and hydrocarbon exploration within the sanctuary as uses incompatible with the protection of sanctuary resources to serve the nation's longterm benefit and enjoyment.
- Require the identification of other incompatible uses.
- Require review of all planned Federal undertakings within the zone of influence of the sanctuary, to protect sanctuary resources from adverse effects of such Federal actions.

Thank you for the opportunity to testify.

Alexander Stone

ALEXANDER STONE
Director
Project ReefKeeper/
American Littoral Society

EXHIBIT A

OCS EIS/EA
MMS 90-0003

Gulf of Mexico
Sales 131, 135, and 137:
Central, Western, and Eastern Planning Areas

Draft Environmental Impact Statement

Author

Minerals Management Service
Gulf of Mexico OCS Region

Published by

U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Regional Office

New Orleans
March 1990

Although not in the planning area for these proposed sales, the Florida Keys comprise an important shallow-water, tropical, coral-reef ecosystem that is unique on the continental shelf of North America. Coral reefs are closely interrelated and interdependent with other marine and terrestrial communities that comprise the coastal ecosystem. Energy, chemical constituents, and mobile species move between the reefs and other communities, including mangrove, seagrass, sedimentary, and hardground communities. In addition, the coral reefs of the Keys are vital to the economy of Florida. Commercial and recreational fishing, as well as nonconsumptive uses such as boating, scuba diving, snorkeling, and educational and natural history activities are very big business inland (Jaap and Hallock, in press).

Jaap and Hallock (in press) have recently reviewed the Florida Keys ecosystem. The following is taken from that work:

> Coral reefs are characterized by high species diversity; rapid recycling of nitrogen and phosphorus nutrients; high gross primary productivity and low net primary productivity; highly transparent water; many species with specialized food requirements, narrow niches, and complex life cycles; symbiotic relationships; and primary productivity by microscopic symbiotic algae (zooxanthellae) within the reef corals.

> The Florida reef tract is the only shallow-water tropical coral reef ecosystem found on the continental shelf of North America. The Florida Keys archipelago, extending from Soldier Key to the Dry Tortugas, exhibits a diverse array of hardgrounds, patch reefs, and bank reefs from 25 m to 13 km offshore. To the west and north of the Keys lie a series of shallow embayments and the continental shelf off southwest Florida. To the east and south are the Straits of Florida with the Florida Current, which is crucial to the reefs: moderate water temperatures and warm, clear, relatively nutrient-poor waters permit the slow-growing, reef-building corals to compete successfully with faster-growing live-bottom biota. Coral reef distribution patterns reflect the extent of water exchange between the continental shelf and the Atlantic. Heavy rainfall, drought, summer doldrums, and winter cold fronts influence temperature, salinity, nutrient supply, and turbidity in the shallow bays and sounds, producing water quality generally unfavorable to reef development. Large islands act as barriers to offshelf transport from Florida Bay and Biscayne Bay, thus Key Largo and Elliott Key have extensive offshore reefs. The middle Keys, which are smaller and separated by numerous wide channels communicating with Florida Bay, have limited reef development. The island mass from Big Pine Key to Key West also provides a barrier to water transport, and thereby allows extensive reef development off this area.

> Coral reefs are three-dimensional limestone frameworks produced by the skeletons of coral and coralline algae. Upward growth of a reef occurs because organisms living on the reef secrete calcium carbonate as part of their growth process. Lime sands and muds, produced by biological and physical breakdown of shells and skeletons of invertebrates and calcareous algae, also contribute to the reef mass by collecting in voids within the reef framework and are then cemented into the reef by encrusting coralline algae and by geochemical processes. While growth processes are building the reef, destructive forces are acting to erode the structure. Physical agents include waves, especially those of storms and hurricanes. Biological processes include fungi, sponges, marine worms, and mollusks.

> The biological richness of a coral reef is remarkable (Faulkner and Chesher, 1979). Literally thousands of species are known from the Florida reef tract.

> Patch reefs are the principal reef form between Elliott Key and Key Largo, where approximately 5,000 patch reefs are found. Patch reefs typically occur in water depths of about 2 to 9 m and are usually roughly circular in outline and range from 30 to 700 m in diameter. The region directly adjacent to the reef is usually barren as a result of grazing by reef-dwelling herbivores that venture from the reef to crop the algae and seagrass.

> Bank reefs occur 7.4 to 13 km seaward of the Keys, paralleling the coast. Most occur off Key Largo and from Big Pine Key to Key West where major islands protect the reefs from the detrimental influence of Florida Bay waters. A reef flat is located on the inshore side of bank reefs. This relatively barren area is characterized by coral rubble encrusted by coralline algae and

mustard hill coral (*Porites astreoides*). Waves, intensive solar radiation, and often tidal exposure severely limit the reef-flat community. Shoreward, the reef-flat grades into a mosaic of sedimentary or seagrass habitats. Spur and groove formations are a major attribute of bank reefs. Spurs are elongate radial limestone formations covered with living corals. Grooves are valleys containing carbonate sand and rubble that separate the spurs. Spur formations are for the most part aligned perpendicular to the coast and continental shelf margin, facing into predominant wind-sea direction. The major spur builder is elkhorn coral (*Acropora palmata*). Other corals, algae, and limestone debris fill spaces between elkhorn colonies. While elkhorn dominates in shallow areas, *Agaricia agaricites* is abundant on vertical surfaces, and below 6 m large haystack colonies of *Montastrea annularis* are major contributors. The deepest portions of Florida bank reefs are in 37-40 m depths and occur as isolated outcrops surrounded by sediments.

The Dry Tortugas is composed of islands, shoals, and reefs located about 117 km west of Key West. Massive thickets of staghorn coral (*Acropora cervicornis*) occur west and north of Loggerhead Key. In a remote area to the west and north of the Dry Tortugas in depths of 64 to 76 m, a zone of highly irregular relief supports an unusual biological assemblage visually dominated by a frondose green algae and large plates of lettuce coral (*Agaricia* spp.).

In addition to their ecological, recreational, and commercial importance, the Keys have a certain intrinsic value aesthetically. This value, while difficult to quantify, is certainly significant. This value is partly recognized by the establishment of two National Marine Sanctuaries and the study of two more potential sites. Looe Key and Key Largo are popular recreational sites with active educational programs. The Sombrero Key and Alligator Reef areas are being studied as to the appropriateness of including them in the Marine Sanctuary system. These, along with the potential designation of the Flower Garden Banks as a Marine Sanctuary, demonstrate the commitment of the nation to preserve the important and relatively rare coral reef ecosystems.

EXHIBIT A

Sensitive offshore habitats are most seriously affected by disturbance from the anchoring (Bright and Rezak, 1978; Rezak et al., 1985) of service vessels and drill rigs and from the emplacement of structures such as rigs, platforms, and pipelines. To the extent that blocks on or near topographic features are leased and developed, exploration, development, and production activities will have a severely deleterious impact on the bottom areas that are actually disturbed by these activities. Considerable mechanical damage will be inflicted upon the bottom by normal and routine oil and gas operations. The drilling operation itself disturbs a small area. The presence of the structure can cause scouring of the surficial sediments (Caillouet et al., 1981). Anchors from support boats and ships, floating drilling units, and pipeline-laying vessels do a great deal of damage to the seafloor. The area actually affected will depend on depth of water, length of chain, size of anchor and chain, wind, and currents. Anchoring in biologically sensitive areas could result in the crushing and breaking of coral heads. Anchoring often destroys a wide swath of sessile organisms when the anchor is dragged or the vessel swings at the anchor causing the anchor chain to drag the seafloor. Anchor damage from nonlease activity has been documented at the Flower Gardens (Section IV.A.3.d.(5)). Disturbance from such activities is likely to cause permanent or long-lasting impacts. Since topographic high communities tend to be located above salt domes, which are ideal oil and gas producing structures, a disturbance at each of the topographic features could be expected to occur (to the extent that the lease blocks on these communities are leased). Several wells may be drilled on each feature, a platform or two may be installed, as well as any necessary pipelines, depending on the oil and gas resources discovered. Such activity would require considerable boat traffic and anchoring, as well as the bottom-disturbing activities of the drilling itself and the installation of the platform and, if necessary, a pipeline. Pipeline emplacement causes considerable disruption to the bottom. It is estimated that 1.51 ha of the bottom are physically disturbed per kilometer of pipeline laid (6 ac per mile); some 1,990-2,850 m³ of sediment are resuspended per km (2,300-4,000 yd³ per mile) of pipeline, depending on the size of the pipeline and depth of trenching (burial). Add to this the damage caused by the eight anchors of the pipe-laying barge, and it is clear that considerable damage will be done if such activities are conducted in sensitive coral areas. Pipeline emplacement is not expected to take place directly over known topographic features themselves; however, in bypassing the crest of the features the pipeline can be expected to be placed within deeper portions of the sensitive zones of a bank. While MMS can impose restrictions as part of the development plan or pipeline application approval (Section I), it is not certain that without specific prohibitions, by regulation or stipulation, that pipelines can always be prevented from impacting sensitive offshore habitats. For the purpose of this analysis, the frequency of such an event is judged to be 10-20 times during the life of this proposal, and the severity of the impact is considered to be high enough so that the loss of elements and/or relationships occurs and lasts for periods from 5 to 10 years at the regional scale, while at the local scale the time period is greater than 10 years. Recovery of the system to pre-interference conditions is probable. Therefore, the impact from bottom disturbance is very high.

Oil and gas operations will routinely discharge drilling muds and cuttings, which may impact the biota of the banks due to turbidity and sedimentation. Most water-based fluids are relatively nontoxic, and their effects are limited to the immediate vicinity of the discharge (NRC, 1983). (The more toxic oil based muds, if used, cannot be discharged under the conditions of the Environmental Protection Agency's NPDES permit.) The water depths from which the topographic features rise range from 50 to 175 m, which dramatically increases the dilution of drilling effluents. For geologic and stability reasons, none of the wells or platforms is expected to be placed directly over the sensitive portions of the banks. Therefore, no effects to the biota of the topographic features are expected due to toxicity. Impacts to the biota are expected, however, from the turbidity and sedimentation associated with drilling fluid discharge. In the Gulf of Mexico OCS, about 90 percent of the discharge settles rapidly, usually within 1,000 m (NRC, 1983). Chai (1982) found that drilling discharges (muds and/or cuttings with bore fluids) were trapped in coral and coral rubble only up to 100 m from the wellhead; and even so, crevicular communities there were largely disturbed only up to 40 m from the drill site, with minor changes evident out to 100 m. Coring conducted by Hudson et al. (1982) on coral heads near drilling activities on a Philippine coral reef revealed little suppression of head coral growth due to drilling, while diver observations noted a 70-90 percent reduction of coral cover in a 125-by-85-m ellipse; coral cover beyond this small area was the same as control areas. Small amounts of drilling effluent may reach a bank from wells drilled more than 1,000 m away; however, these amounts, while measurable, would be extremely small and would have no effect on the biota. Effluents discharged at the water's surface within 1,000 m of a bank could impact the biota of the bank, although the currents at the banks would tend to keep the bank swept clean of fine sediments and would prevent the accumulation of drilling muds at the bank. Drilling muds and cuttings discharges cause turbidity and sedimentation, which may smother the sessile benthic invertebrates, causing

mortality. Turbidity from the discharge can cause reduced light levels to the benthic organisms and clogging of the feeding mechanisms of the sessile invertebrates. These conditions can lead to reduced productivity, susceptibility to infection, and mortality. The MMS, as a condition of the operational plan approval, can require the operator of a lease to perform certain measures, such as sheening, that would reduce the impacts to the biota of the banks to very low. The USEPA, through its NPDES permitting procedures, may also require mitigative measures. However, without the mitigative measures (including sheening) of the biological stipulation (Section II.B.1.c.(1)), it is assumed, for purposes of this analysis, that such impacts will occur 100-200 times during the life of this proposal, and that the severity of the impacts is judged to be high enough so that the loss of elements and/or relationships occurs and lasts for periods from 5 to 10 years at the regional scale, and for periods longer than 10 years at the local scale. Recovery of the system to pre-interference conditions is probable. Therefore, the impact to the topographic features from drilling discharges is expected to be very high.

Produced water, which is saltier seawater associated with produced hydrocarbons, may be a potential hazard to the biota of topographic features. It contains high concentrations of inorganic salts ranging from a few milligrams per liter (mg/l) to 350,000 mg/l. Hydrocarbons and organic compounds may be present in parts per million (ppm) levels (Offshore Operators Committee, 1975). The study of the Buccaneer oil field offshore Texas (USDC, NMFS, 1977) determined that produced water was discharged at a rate of 138 m^3 per day between January 1975 and February 1976. The average oil content of this produced water was 25.1 ppm. Near-platform macrobenthic populations were depressed and had a high turnover rate as compared to the surrounding sea bottom; this may have been a result of increased scour action around the platform structure itself, but no cause-effect relationship was established. All discharges must meet USEPA standards, which allow no more than 72 mg/l daily maximum of oil and grease discharge and 48 mg/l maximum monthly average (72 mg/l is equivalent to 72 ppm). Due to the water depth at the topographic features, the discharged produced water would be greatly diluted. Although the discharge of produced waters from production platforms is nearly continuous, the severity of the impacts is judged to be such that the system may exhibit the possible loss of a few elements at the regional or local scale, but no interference to the general system performance occurs; recovery of the system to pre-interference conditions is rapid. Therefore, the impact to the biota of the topographic features from the discharge of produced waters is judged to be very low.

The resuspension of sediments disturbed during a subsurface blowout can result in localized water turbidity and deposition of the materials on the surrounding seafloor, which may in turn cause the smothering of local benthic communities or induce stress in part or all of a local community. An additional potential harmful effect could be caused by concentrations of toxic constituents that may be in the sediments (from contaminated river runoff, for example). Gas well blowouts generally pose far less environmental risk than do oil spills, resulting only in very high concentrations of suspended sediments and increased levels of gas in the water column very near the source of the blowout. To the extent that oil or condensate is present in the reservoir, some liquid hydrocarbons may also be injected into the water column. The suspended sediments may be carried some distance by currents, but the bulk of the sediments is redeposited within a few thousand meters of the blowout site. Low-molecular-weight hydrocarbons (gases) will dissolve in the water column until saturation is reached; both gaseous and dissolved low-molecular-weight hydrocarbons will be released into the atmosphere within a few days of a blowout without major biological effect. Liquid hydrocarbons will be diluted to background levels within a few thousand meters distance from the blowout site and will degrade with time. A blowout directly on a bank or near a bank could have serious long-term or permanent consequences. In most cases, it is expected that the currents will sweep the contaminants around the bank rather than deposit them on the bank (Rezak et al., 1983). Some small fraction of the sediments or oil may reach a bank and come in contact with organisms; the extent of damage will depend on the amount of contaminant and the length of time it remains on the bank. Amounts are not expected to be high because of dilution, dispersion, settling, and current action (resweeping the contaminants around and from the bank). Length of time on the bank may be long for the heavier sediments, but these are likely to settle out rapidly and not reach the bank at all (Bouma and Bernard, 1977). A large blowout occurring near a biologically sensitive area would have severe environmental consequences. Large amounts of the sediment resuspended by the blowout could smother the coral community, causing mortality. Recolonization would be slow if at all. A blowout occurring directly on top of a bank would destroy not only the biota of the feature but also the feature itself, making recolonization impossible. Such an accident could replace the topographic feature with a crater. Since the biota of the banks are dependent upon topographic relief, the community that was destroyed by the blowout could not recover. Fortunately, blowouts are quite rare in the Gulf of Mexico. From 1956 to 1989, 157 blowouts occurred on the OCS, only 28 of which resulted in the release of oil into the environment. Of these, 16 involved less than one barrel of oil spilled; only two

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blowouts resulted in the spillage of more than 6,000 bbl (Section IV.A.3.b.(4)). Therefore, for purposes of this analysis, the frequency of a blowout in the vicinity of a topographic feature is judged to occur only once or twice during the life of this proposal, and the severity of impact is high enough to result in some substantial loss of portions of ecosystem elements but not permanently altering general relationships, lasting, at the regional scale, for 2-5 years and at the local scale for 5-10 years; recovery of the system to pre-interference conditions is assured. The impact from this factor is thus low.

There is an estimated 7 percent chance of an oil spill greater than or equal to 1,000 bbl occurring in the Western Gulf as a result of the proposed action (Base Case) (Table IV-15), and it is assumed that one small spill of greater than 1 and less than 50 bbl will occur every four years and that no spill greater than 50 and less 1,000 bbl will occur during the 39-year lease life (Section IV.C.3.a.). It is assumed that one large oil spill will occur (Section IV.C.3.b.). These oil spills may occur from either surface or seafloor sources. Surface spills could occur from tankers or oil platforms. Most of the small spills would occur from surface sources. The medium and large spills are equally likely to result from surface spills as seafloor spills. Oil from a surface spill can be driven into the water column. Measurable amounts have been documented at depths approximating 10 m. At this depth, the oil is only found at concentrations several orders of magnitude lower than the amount shown to have an effect on corals (Loya, 1983; McAuliffe et al., 1975 and 1981; Knap et al., 1985). In the Western Gulf, the East Flower Garden Bank crests the shallowest at 15 m. Therefore, a surface oil spill would likely have no impact on the biota of the East Flower Gardens or the other topographic features because any oil that might be driven to 15 m or deeper would be well below the concentrations needed to cause an impact. Because of the water depths in which topographic features are found, no oil from a surface spill will reach the biota of concern. Oil from a subsurface spill (i.e., a blowout or pipeline spill) could reach the biota of concern on a topographic feature. Impacts could then be serious to the local biota actually contacted by the oil. Destruction of the biota of such areas may have severe and long-lasting deleterious consequences on the specific commercial and recreational fisheries habitats affected, such as loss of habitat, loss of species (including prey species), destruction of food substrates, and change in sediment characteristics, all of which may result in the reduction or loss of one or more fisheries. These areas also have intrinsic biological, ecological, and esthetic values of their own that would be lost by such activities. Corals, however, would probably not be impacted this severely. Knap et al. (1985) found that *Diploria strigosa* dosed with oil exhibited sublethal effects that increased rapidly; effects were short-term, and recovery of the coral was also rapid. Additionally, *Diploria* appears to be relatively tolerant of brief exposures to chemically dispersed crude oil. Nonchemically dispersed oil adhered longer to the colonies; this would lengthen the exposure time of coral to oil, thereby increasing the impacts. Of note is the fact that the cryptic fauna associated with the coral community may be more sensitive to oil damage than the corals. Such a blowout and spill event, however, is quite unlikely. For purposes of this analysis, the frequency of a blowout (as noted above, there have been only 28 oil spills resulting from blowouts on the OCS between 1956 and 1989) and/or an oil pipeline break (in the years 1967-1986, there have been only 31 oil spills from pipelines on the OCS, 23 of which were between 50 and 1,000 bbl and only 8 greater than 1,000 bbl [USDI, MMS, 1988b]) near a topographic feature is judged to be rare. Even if a seafloor oil spill were to occur, the spill would have to come into contact with a biologically sensitive feature. The fact that the topographic features are widely dispersed in the Western Gulf, combined with the probable random nature of spill locations, would serve to limit the extent of damage from any given spill to only one of the sensitive areas. The currents that move around the banks will steer any spilled oil around the banks rather than directly upon the banks, lessening the severity of impacts. Thus, the impact from this factor is judged to be very low.

Removal of platforms constructed on or very near sensitive habitats, if carried out using current methods of explosive removal, would adversely affect benthic habitats very near the removed site. Both explosive and nonexplosive removal operations will disturb the seafloor and resuspend sediments in the water column, resulting in turbidity. Explosive methodologies create more turbidity than nonexplosive methods. Deposition of resuspended sediments would occur much in the same manner as discussed for muds and cuttings discharges. The deposition could cause smothering and perhaps mortality of sessile benthic invertebrates. Turbidity can cause reduced light levels and clogging of filter-feeding mechanisms. These conditions could lead to reduced productivity, susceptibility to infection, and mortality. Explosive structure removals create shock waves, which could also harm resident biota. It appears that corals and other sessile invertebrates are fairly resistant to shock. O'Keeffe and Young (1984) have described the impacts of underwater explosions on various forms of sea life. Most of their data, however, were derived from open water explosions of a much larger size than those used in typical structure removal operations. They found that sessile organisms of the benthos, such as barnacles and oysters, and many

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mobile fauna of life (such as shrimp and crabs) that do not possess swim bladders are remarkably resistant to the blast effects from underwater explosions. Many of these organisms not actually in the immediate blast area would survive. Data from underwater explosive tests indicate that oysters exposed to the detonation of 135-kg (300-lb) charges in open water showed only 5 percent mortalities at distances of 8 m (25 ft). Crabs exposed to 14-kg (30-lb) charges of explosives in open water showed 90 percent mortalities at 8 m (25 ft), but very few died at 46 m (150 ft). These authors also noted "... no damage to other invertebrates such as sea anemones, polychaete worms, isopods, and amphipods." Benthic organisms appear to be further protected from the impacts of subbottom explosive detonations by the very rapid attenuations of the underwater shock wave through the seabed sediments to the benthic communities. Theoretical predictions suggest that the shock waves of explosives set 5 m below the seabed as required by MMS regulations would further attenuate blast effects. Furthermore, charges used in OCS structure removals are typically much smaller than some of those cited by O'Keeffe and Young. Impacts to the topographic features from platform removal are expected to be high and could be very high if the structure to be removed were located directly on a feature. Although platforms are unlikely to be situated directly over the most sensitive portion of the banks because of geologic hazards, it must be noted that, in the absence of the biological stipulation of Section II, platforms could be so situated should the lessee deem it necessary. (It should be further noted that the *Programmatic Environmental Assessment for Structural Removal Activities* (USDI, MMS, 1987a) predicts low impacts to the sensitive offshore habitats from platform removal precisely because of the effectiveness of the stipulation in preventing platform emplacement in the most sensitive areas of the topographic features of the Gulf of Mexico.) In any event, the relatively small size of the charge (normally 50 lb or less) and the fact that the charge is detonated 5 m below the mudline would serve to restrict the impacts to very close to the structure being removed. Fifteen platforms are estimated to be installed (as a result of this proposal) and removed during the life (or within one year) of this proposal; some may be on or near topographic features. For purposes of this analysis, this frequency of the effects of removal is considered to be 2-3 times during the life of the proposal, and the severity of impacts (to a small area) is judged to be high enough so that the loss of elements and/or relationships occurs and lasts for periods from 5 to 10 years at the regional scale, and for periods greater than 10 years at the local scale. Recovery of the system to pre-interference conditions is probable. Thus, the impact from this factor is high. See Section IV.A.3.b.(3) for more information regarding structure removals.

Summary

Several impact-producing factors may threaten the communities of the topographic features.

Anchoring of vessels and structure emplacement result in physical disturbance of the benthic environment and are the most likely activities to cause permanent or long-lasting impacts to sensitive offshore habitats. Recovery from damage caused by such activities may take 10 or more years. The impact level from this factor is considered to be very high.

Operational discharges (drilling muds and cuttings, produced waters) may impact the biota of the banks due to turbidity and sedimentation, resulting in death to benthic organisms in large areas. Recovery from such damage may take 10 or more years. The impact level from this factor is considered to be very high.

Blowouts may similarly cause damage to benthic biota by resuspending sediments, causing turbidity and sedimentation, and resulting in death to benthic organisms. Recovery from such damage may take up to 10 years. Fortunately, blowouts are rare in the Gulf. The impact level from this factor is considered to be low.

A 1 spills (there is an estimated 7 percent chance of an oil spill greater than or equal to 1,000 bbl occurring in the Western Gulf as a result of this proposed action) will cause damage to benthic organisms if the oil contacts the organisms; such contact is likely only from spills from blowouts, which are rare in the Gulf. The impact level from this factor is considered to be very low.

Structure removal using explosives (as is generally the case) results in water turbidity, sediment deposition, and potential explosive shock-wave impacts. Severe damage to benthic organisms could result. Recovery from such damage could take more than 10 years. The impact level from this factor is considered to be high.

It follows from the above that activities resulting from this proposal, especially human-disturbing activities, have a potential for causing very high impacts to the biota of the topographic features. While some of the activities are expected to result in lower impacts, those having the greatest impacts are also those most likely to occur.

Conclusion

The proposed action is expected to have a very high impact on the sensitive offshore habitats of the topographic features.

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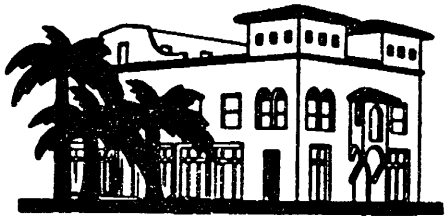

REGIONAL PLAN FOR SOUTH FLORIDA

PREPARED BY

SOUTH FLORIDA REGIONAL PLANNING COUNCIL

Cluster Title #41: PROTECTION OF MARINE RESOURCES

Background Statement

Fishing industries contribute a substantial amount to the South Florida economy. In 1985, the commercial fish landings in South Florida totalled $56,893,917[1]. Biscayne Bay, Florida Bay, The Keys and other small estuaries contain abundant amounts of fish and shellfish. Sport fishing is also a big industry in South Florida.

Commercial fishing rates are monitored by the National Marine Fisheries Service (NMFS). Currently there is no comprehensive monitoring of recreational fish landings. The NMFS does conduct port samples and charter boat surveys but this covers only a small percentage of the recreational fishing activity. Florida Department of Natural Resources is beginning a statewide monitoring program for recreational fishing. This will be an ongoing program and will help to manage the resource[2].

The continuation of the fishing industry in South Florida relies on protection of the natural resources and the environment. Estuaries and coastal marshes serve as nursery grounds and habitat for hundreds of species of flora and fauna. The filling of marshes and other coastal wetlands eliminates habitat area and a nutrient source for coastal areas. It is estimated that over 50 percent of the wetlands have been filled or altered since the early 1900's. Of these, only about 10 percent have been reclaimed[3]. The urbanization of South Florida has had substantial impact on freshwater and coastal wetland resources.

The economic importance of estuaries includes the marine industry (boating and related activities) and commercial and recreational fishing. This Region employs commercial fishermen whose livelihood depends on the health of the estuarine system. Estuaries serve as nurseries for juvenile fish and are the most productive areas on the face of the earth in terms of gross productivity (amount of biomass produced).

While people benefit from the estuaries and their components, the use of these areas often brings change. Waterfront areas provide attractive places for development. The majority of the Region's population lives within 10 miles of the coast. The Florida Keys are primarily coastal property. The results of development in these areas include landfilling and natural vegetation loss. Storm water runoff, aerial spraying and sewage disposal often result in the total destruction of these sensitive areas.

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To accommodate growth, channels have been built to divert excess water, causing an increase of fresh water flow to the estuaries. This, in turn will change the salinity patterns, affecting the estuarine plants and animals. It is estimated that over 400 million gallons of fresh water from runoff and waste water treatment plants are discharged into coastal water in the Region each day[4].

Seagrasses are an important element in the productivity of estuaries. These aquatic plants grow in shallow clear coastal waters and provide nutrients and habitat for many organisms. Seagrasses also aid in the stabilization of the estuary bottom. Historically, a large percentage of the Region's estuaries have vast meadows of sea grasses, but shading from docks, piers and other water dependent structures along with turbidity from development and dredge and fill operations has had an impact on the seagrasses. "Prop dredging" also has an impact on the seagrasses of the Region. These plants grow in shallow waters and are often destroyed when motor boats go through these areas and destroy the grasses with their boat props. Public awareness and boater education can help remedy this problem. As the seagrasses diminish, so will the productivity of the estuaries. Currently, several thousand acres of seagrasses are protected by Federal, State, and local laws. This has helped in reducing the impact on this resource.

Another highly productive feature of the coastal region unique to South Florida and important to the fishing industry is the coral reef system. South and west of the Florida peninsula lies the Florida Reef Tract, the most extensive living coral reef system in the continental United States. Coral reefs are a phenomenon of the tropics. The Florida Reef Tract is at the northernmost limit for reefs, which means it is constantly under natural stresses, such as the influx of cold water. The effects of additional external stresses are poorly known. The heavy commercial and recreational use of the reefs, their proximity to the dense population centers of South Florida, and man's shoreline activities are all factors which make the coral reefs highly vulnerable. Some of the environmental concerns of reefs include dredge and fill activities, channelization, ocean outfall for sewage effluent, land development, water pollution, diving, fishing, anchoring and boat grounding, and oil tanker traffic which all adversely affect coral reefs[5]. Land development, although occurring up to several miles from the coral reef, can impact the resource. Increased urban and agricultural runoff, sewage and waste disposal, and an increased population accessing the reef all have an effect on the system. Development on the uplands needs to consider these offshore effects.

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THE ECOLOGY OF THE SOUTH FLORIDA CORAL REEFS: A COMMUNITY PROFILE

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CHAPTER 1

CHARACTERIZATION OF THE RESOURCE

1.1 OVERVIEW

Coral reefs are highly complex and diverse communities of biota, a phenomenon of the tropics and subtropics limited by such factors as suitable substratum, temperature, light, and sedimentation. In simplest terms coral reefs are concentrated complexes of corals and other organisms that construct a limestone structure in shallow water in the initial building process, a set of primary framework builders set down the first structure, later colonizers add to the volume. Skeletal breakdown by physical and biological actions creates carbonate sediments, which are recycled by other biological processes or are cemented to the reef framework through biological or geochemical processes.

The coral reef complex found off southeast Florida represents a mosaic that exhibits extreme variability in all parameters used to evaluate biological communities. Coral reefs provide a wide spectrum of vocational and recreational activities. Many important fisheries are directly tied to these reef communities, a reef's principal resource value (noncommercially) is as a highly productive habitat at concentrates marine protein in a localized area. Coral reefs also play a significant role in the tourist industry of southeast Florida.

While the level of reef usage is increasing in southeast Florida experiences rapid population growth, management of these reef communities tends to lag or is unresponsive to the problems described herein.

Scientific and lay literature has reported real and potential threats to southeast Florida coral reefs (Straughn 1972, Voss 1973, Davis 1977a, Dustan 1977b, Bright et al. 1981). Impacts have included vessel groundings and sinkings, oil spills, anchor damage, beach renourishment dredging, fishery activities (lobster trap recovery), tropical fish and invertebrate collecting, shipwreck salvage, and diving-related activities. Individually these acts do not greatly affect the resource vitality, but the chronic and synergistic nature of some of these acts is cause for concern.

The goal of this document is to serve as a reference for those interested and concerned individuals responsible for environmental management of the resource, as well as those seeking a better understanding of Florida's coral reefs.

1.2 CORAL REEF DISTRIBUTION

Although the tropical coral reef communities found off southeast Florida (Figure 1) are the emphasis of this report, a brief summary of coral reef distributions throughout Florida will aid in understanding this resource. From the Georgia border to near Fort Pierce on the Atlantic coast, in depths of 15-50 m, *Oculina* (pretty coral) bank communities are the dominant coral community (Avent et al. 1977, Reed 1980). These are low-diversity coral assemblages, but important fishery habitat. Grouper find refuge, feed, and breed in and near these structures. From Stuart (St. Lucie Inlet) to near Palm Beach is a transitional community of *Oculina* bank flora and fauna and hardier elements of the tropical reef biota. This region is characterized by the convergence of the temperate and subtropical climate zones. From Palm Beach southward to Miami (Cape Florida) elements of the tropical coral reef biota become increasingly important as a north-to-south gradient, however, the building of three-dimensional reef structures does not occur. This area is characterized as an octocoral-dominated hardground community (Goldberg 1973a). The two stony corals most responsible for reef building (*Acropora palmata*, elkhorn coral, and *Montastrea annularis*, star coral) rarely occur here, and currently do not actively build reefs. *Acropora palmata* was once an important reef builder in this area, but it ceased building reefs about 4,000 years before present (YBP) (Lighty 1977, Lighty et al. 1978). Today only a few isolated colonies are found north of Fort Lauderdale.

The region of maximum coral reef development is restricted to south and west of Cape Florida, offshore of the Florida Keys archipelago (Figure 1). This small chain of islands extending from Soldier Key to Dry Tortugas exhibits a diverse pattern of hardgrounds, patch reefs, and bank reefs from 25 m to 13 km offshore. This is the only shallow water (< 10 m) tropical coral reef ecosystem found on the Continental Shelf of North America, and has been referred to as "The Florida Reef Tract" (Vaughan 1914a). This discontinuous assemblage of reefs forms an arc paralleling the Keys' coastline in a general southwesterly trend. Landward, the reefs are bounded by the Keys and a series of shallow embayments (Biscayne Bay, Card and Barnes Sounds, and Florida Bay), seaward of the reefs are the Straits of Florida and the Florida Current. The Florida Current, a subsystem of the Gulf Stream, plays an important role in the existence and maintenance of coral reefs off southeast Florida. It moderates the environment by moderating water temperatures. The current's source is tropical, hence, its waters are significantly warmer than resident shelf water masses during the winter, thereby modifying water thermal conditions such that offshore reef development is not hindered by extremely cold weather that occasionally occurs when cold fronts intrude into southeast Florida. Inshore patch reefs, however, are more vulnerable to cold extremes caused by winter weather. The current system is dynamic, and eddies or meanders bring considerable volumes of water into the reef environment. This brings plankton, a food source, and new recruitment from nonresident populations to the reefs. The significance of the Florida Current cannot be overestimated when considering coral reef existence off southeast Florida.

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The Keys or islands act as barriers to cross shelf water transport from shallower bays and sounds. These bays are very shallow, hence much influenced by meteorological events. Temperature, salinity, and turbidity can be significantly affected. Heavy rainfall, drought, and winter cold fronts are the major influences. Coral reef distribution patterns reflect the extent of water exchange between the bays and sounds and the Atlantic. The larger northern Keys (Elbott and Largo) have extensive reef development off their coasts; the middle Keys, which are smaller and more separated, have numerous channels communicating with Florida Bay (Plate 1a) and exhibit less reef development than the upper or lower Keys. The influence of Florida Bay on water quality negatively affects reef development in the middle Keys area.

Major bank reefs off the Florida Keys include Carysfort, Elbow, Key Largo Dry Docks, Grecian Rocks (Plate 3a), French (Plate 1b), Molasses, Alligator, Tennessee, Sombrero, Looe Key (Plate 2a and b), Eastern, Middle, and Western Sambos, American Shoals, Eastern and Western Dry Rocks, Rock Keys, and Sand Key. Dry Tortugas is studded with various coral reefs (Davis 1979, 1982).

Off the west coast of Florida, tropical reef development is nonexistent. Ledges and outcroppings are a special rocky habitat which supports an association of hardy corals and other biota; however, they do not construct three-dimensional reefs. The Florida Middle Ground (a fossil reef formation about 157 km northwest of Tampa Bay), while exhibiting higher diversity in coral species, is not an active coral reef comparable with those found off southeast Florida. These areas in the eastern Gulf of Mexico, however, are critical habitats that should be provided with rational management, especially since important fisheries are found in association with the gulf low bottom communities.

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1.5 ECONOMIC SIGNIFICANCE

Exploitation of Florida's reef resources began with the Calusa Indians, who harvested marine animals (fishes, lobsters, and conchs), shells, and coral for tooling. Recovered artifacts consistently contain coral artifacts. During the mid-17th to late-19th centuries, the Florida reefs posed a significant navigational hazard to Europeans and Americans. Today, salvagers recover gold, silver, and artifacts from the numerous shipwrecks adjacent to the reefs. Many reefs are named for shipwrecks. Looe Key Reef is named for the 44-gun British Frigate, the HMS *Looe*, which was wrecked on the reef the morning of 5 February 1744. Molasses Reef is named for an unknown vessel laden with molasses that foundered there.

Early Florida Keys' settlers had a thriving enterprise of luring unsuspecting ships onto the reefs with false beacons. They then claimed salvage rights on the wreck, salvaged the cargos, and continued them off. Wood from the vessels was also salvaged. Many of the older houses in Key West are constructed with salvaged ship timbers. In an effort to reduce the shipwrecks, only sand reef marl was dredged toward mitigating the hazards. This resulted in the lighthouse construction between 1825 and 1886 on the most dangerous reefs. These lighthouses significantly changed the nature of the Keys' economy. Fishing, ship building, sponge harvesting, and agriculture replaced shipwrecking as the major economic endeavor at Key West.

Commercial sale of coral began in Key West around 1830 and remained a purely regulated salvage

EXHIBIT C

industry until 1950. During that period collectors used either grappling hooks from boats or hand harvested while reef diving. The industry changed with the advent of scuba diving and the increased interest by the general public in the marine environment. There was increased demand for coral by tourists as well as for export to northern markets. No quantitative data exist on the magnitude or economics of the coral harvest. It is suspected that commercial coral harvest at no time employed more than 20 individuals working on a part-time seasonal basis. In 1973 and 1975 Florida enacted statutes making it illegal to collect, sell, or damage stony corals (Millepora and Scleractinia) and two species of sea fan (Gorgonia) within State waters. In 1976, the Federal Government (Bureau of Land Management) wrote regulations under the authority of the Outer Continental Shelf Lands Act to protect corals and reefs in the area under federal jurisdiction (beyond the 3-mi limit in the Atlantic). The Fifth Circuit Court of Appeals, however, ruled that these regulations can only be applied when active mineral or petroleum exploration or production is occurring in the immediate vicinity of the coral. Currently, the Gulf of Mexico and South Atlantic Fishery Management Councils are preparing a management plan for corals and coral reefs in the region between North Carolina and the Texas-Mexican border.

Today, coral being sold is foreign. From 1977 to 1979, 200,000 pieces of coral were imported with a dockside value of $31,500. Retail markup would place the value of imported coral at about $95,000. Most of this coral came from the Philippines, where collecting and selling coral is illegal, but enforcement is difficult because of the thousands of islands belonging to that nation.

Economically, Florida coral reefs directly or indirectly generate an estimated $30 million-$50 million annually within the Monroe County region. These monies come from all reports of fishing, diving, education, and research. Commercial fishing in particular depends heavily on the coral reef habitats. Most of the sought-after species spend all or part of their lives in the reefs. For some species, the coral reefs are a nursery area where juveniles mature into adults. Many species breed and/or feed within the confines of the coral reef. Resident fish populations may only seek shelter and refuge in the reef and feed in the nearby surrounding grass flats or the open sea. The life history patterns of individual species vary, but the reef is a critical link to the success of these species. Table 1 presents commercial landings of reef-related species in Monroe County for 1980.

Diving as a sport and hobby attracts more than a million people to the Florida Keys annually. These divers rent and purchase equipment, charter tours to the reefs, and purchase food and lodging. Tourists come from as nearby as Homestead and Miami, and as far away as Europe and Canada. A 1979 *Skindiver* magazine survey indicated that the Florida Keys was the most popular diving location in the United States among traveling divers. The survey reported that the average diver spent about $718 per trip. There are 40 businesses

Table 1
Commercial landings of reef-related species in Monroe County, 1980 (NMFS 1981)

Species	Weight (lb)	Value ($)
Ballyhoo	311,724	85,871
Jacks	29,881	2,674
Dolphin	89,977	33,099
Grouper & scamp	509,794	451,014
Hogfish	34,184	17,965
Jewfish	32,646	5,312
Shark	175,643	18,365
Snappers		
Lane	15,526	6,890
Mangrove	240,117	127,530
Mutton	160,469	131,419
Red	15,532	20,820
Vermillion	915	861
Yellowtail	735,104	730,744
Triggerfish	105	19
Warsaw grouper	3,371	1,324
Spiny lobster	4,636,818	10,132,913
Spanish lobster	28,199	67,814
Total	7,039,205	11,834,634

in Monroe County devoted entirely to tourist diving. For the most part this activity is a nonconsumptive form of reef usage. Most tourists come to experience the reef environment firsthand and to observe fish. Some divers do spearfish and catch lobsters. Spearfishing is banned in some marine parks and sanctuaries, i.e., John Pennekamp Coral Reef State Park, Key Largo National Marine Sanctuary (JPCRSP-KLNMS), and Ft. Jefferson National Monument. Much of the tourist diving is concentrated offshore of Key Largo in JPCRSP-KLNMS, off Big Pine Key at Looe Key National Marine Sanctuary (LKNMS), and off Key West.

Besides diving, there are glass-bottom boat tours that allow the nondiver to enjoy the reef firsthand without getting wet. Charter airplanes also fly tourists over the reefs. Tourist gift shops market many reef-related souvenirs, from colorful T-shirts to postcards.

All levels of education, from elementary to graduate school (including youth organizations, scouts, sea camps, and diving schools), bring students to the coral reefs to supplement classroom experiences. Special publications, documentaries, and movies about the coral reefs are produced. These are an economic and educational benefit to the Nation.

Economic impacts of applied and basic research on coral reef communities include equipment rentals, air fills, and lodging. Potential commercial applications of this research will benefit pharmacology (anti-cancer compounds from various reef organisms are being

EXHIBIT C

tested), medicine (artificial bones), geology, reef fisheries management, aquaria, mariculture techniques, and archaeology.

Revenue from all these activities reenters the south Florida economy and generates employment for many other people in the service sectors. The corals' greatest value, however, is as a living resource, and not as an item of commerce. Their habitat values and attraction to divers are worth far more than as an item of commerce. While coral reefs remain on the seafloor, they are like a good investment: they continue to generate revenue through the marine protein harvested them and the divers who come to enjoy them. As curios, they bring a smaller dividend to a fewer number of people.

6.5 ECOLOGICAL ASPECTS OF REEF FISH DIVERSITY

Only two studies have attempted to fully define the diversity of fish species on selected Florida reefs: Longley and Hildebrand (1941) and Starck (1968). Longley and Hildebrand provided a systematic account of all fishes they captured or observed during 25 years of investigations at the Dry Tortugas, and Starck listed fishes collected and observed during 9 years of study at Alligator Reef. Longley and Hildebrand listed 442 species, 300 of which are closely associated with coral reefs. Starck listed 517 species, 389 of which he considered reef species. The remaining species were either offshore pelagic forms, demersal species from deeper water, or strays from adjacent inshore areas. Both lists are from single reef areas and, therefore, probably underrepresent the actual diversity of fish species on Florida's reefs.

Bohlke and Chaplin (1968) identified 496 fish species within the Bahamas and adjacent waters. About 450 of these species are known to occur on coral reefs and probably approximate Florida's total diversity.

Several less extensive surveys of fish on Florida reefs involved visual census, fishing, or limited collecting techniques. One of the earliest surveys was done by Jordan and Thompson (1904), who identified 218 species inhabiting the reefs at the Dry Tortugas by using baited lines and various nets.

The high diversity of fish on Florida's tropical coral reefs is exemplified by a few studies which reported the number of species observed within a given limited area. Bohnsack (1979) recorded a mean number of species ranging from 10 to 23 on isolated natural coral heads less than 330 x 210 x 150 cm in size off Big Pine Key, Florida, and 13 to 20 species on small artificial reefs (160 x 60 x 80 cm) that he established. Aleyinov and Brooks (1975) observed an average of 14.7 fish species during 2.75-min samplings during which scuba divers took color movies. During the sample period the diver panned the camera to include most or all fishes sighted within 4-5 m (Aleyinov and Brooks 1975).

At present, there appears to be only six or seven species of reef fish that might be considered endemic to the U.S. continental reefs. Two of these, *Lythrypnus phorellus* and *Gobiosoma oceanops*, are small gobies; the latter (ocean goby) is common. The purple reef fish (*Chromis scotti*) is also known to occur only within U.S. waters, although the genus is well represented by at least three other species throughout the West Indies. *Ophidion selenops*, the mooneye cusk eel, is a species reported by Starck (1968) to occur occasionally within the area of Alligator Reef (near Islamorada Key), but has not been reported elsewhere. Cusk eels are eelless elongate fishes, highly nocturnal and burrowing into sand during the day. At least five species of cusk eels, representing two genera, are known to occur along the southeastern United States, but the taxonomy of this group is not entirely clear. Two small tropical serranids have also been considered endemic to the continental United States. One of these, the blue hamlet (*Hypoplectrus gemma*), may only be one of many color morphs of a single species, *H. unicolor*, which is common throughout the Caribbean (Thresher 1978; Greene and Rosenblatt 1980). The other serranid is the wrasse bass (*Liopropoma eukrines*), which ranges northward along the continental shelf, but is not known to occur elsewhere in the Caribbean. The remaining possible endemic species is the cubbyu (*Equetus umbrosus*), but its distinction from *E. acuminatus*, found elsewhere in the Caribbean, is questionable (Robins et al. 1980).

The reasons for high diversity of fish species on coral reefs is frequently debated and may be related to a number of factors (Sandon 1968; Goldman and Talbot 1976; Smith 1978; Talbot et al. 1978). All biological communities tend to diversify through colonization over time, and coral reefs exist in an environment generally without major perturbations or great temperature change. Most coral reefs have had long and relatively stable periods to develop. Within this overall long-range stability of the tropics, intermittent moderate disturbances from weather events occur. Although we are just beginning to understand the effects of disturbance events (Endean 1976; Bradbury and Young 1981; Pearson 1981; Woodley et al. 1981; Davis 1982; Porter et al. 1982; Roberts et al. 1982), they may help to maintain a higher diversity by preventing a resource-limited equilibrium and the competitive exclusion of some species (Connell 1978).

Coral reefs generally include a variety of microhabitats related to zones of coral growth, wave exposure, and reef structure (Wells 1957a; Maxwell 1968; Stoddart 1969). This diversity of habitat types allows for an increased diversity of fish species. Although habitat relationships have not been extensively studied on Florida reefs, few reef fish have been found to be cosmopolitan over all available habitats. At One Tree Island Reef, Australia, 49% of all species collected were restricted to one or another of five major habitats (Goldman and Talbot 1976). Similar found differences among habitats have been reported by Gosline (1965) for the Hawaiian Islands; Chave and Eckert (1974), Fanning Island, South Pacific; Jones and Chase (1975), Guam; Harmelin-Vivien (1977), Tuléar Reef, Madagascar; and Williams (1982), the Great Barrier Reef.

The coexistence of a high number of fish species on coral reefs also implies either that these species are highly specialized (occupy finely partitioned niches) or that there is considerable overlap in resource utilization. Predators are generally food limited and tend to have more closely separated niches (Hairston et al. 1960, Paine 1966). Reef herbivores such as parrotfishes, damselfishes, gobies, and surgeonfishes are generally believed to use many of the same food resources (Randall 1967; Smith and Tyler 1972, Hobson 1974). Both specialization and resource-sharing appear to occur among various reef fish groups and at various life stages within some species.

REEFKEEPER NETWORK PARTICIPANT GROUPS
73 as of April 5, 1990

Alachua Audubon (FL)

Apalachee Audubon (FL)

Atlanta Oceans (GA)

California Kayak Friends (CA)

Center for Marine Conservation (FL)

Collier Audubon Society (FL)

Conservation Council of Hawaii (HI)

Corales Vivos (MEXICO)

Earth Island Institute (NATL)

Florida Keys Audubon (FL)

Florida League of Anglers (FL)

Friends of the Earth (WA)

Georgia Environmental Project (GA)

Heal the Bay (CA)

Intl. Marine Life Alliance (INTL)

Life of the Land (HI)

Manasota 88 (FL)

Micronesian
Island Conservation (FSM)

Mudhole Divers (MO)

Nature Conservancy (FL)

New Hampshire Wildlife Fed'tn (NH)

Alpine Divers (NM)

Artificial Reef Dvlpmnt Cntr (NATL)

Beneath the Sea (NY)

Center for Marine Conserv'tn (NATL)

Central California Council
of Diving Clubs (CA)

Colorado Reef Seekers (CO)

Conservation Council
of North Carolina (NC)

CUDA Dive Club (FL)

Florida Audubon Society (FL)

Florida Keys Izaac Walton League (FL)

Florida Marine Life Ass'n (FL)

Friends of the Everglades (FL)

Greenpeace (INTL)

Innerspace Explorers (FL)

Island Conservation Effort (CAYMANS)

Long Island Divers (NY)

Marine Resources Dev. Fndtn (FL)

Mid-Atlantic Diving Society (PA)

National Parks
and Conservation Ass'n (NATL)

Nautilus Divers (CA)

New York Sea Gypsies (NY)

Ocean Protection Coalition (CA)

Ocean Watch Foundation (FL)

Oceanic Society (NATL)

Organized Fishermen of Florida (FL)

Panhandle Audubon (FL)

P.R.I.D.E. Fndtn (TURKS & CAICOS)

San Diego Sea Dogs (CA)

Scuba Schools Intl. (INTL)

Scuba West Dive Society (FL)

Sea Turtle Preservation Soc'ty (FL)

South Dade Audubon (FL)

Student Environmental Coalition (FL)

Texas Gulf Coast Council
of Diving Clubs (TX)

Watersports Exchange Ass'n (FL)

Wilderness Society (FL)

Wildlife Society of Texas (TX)

Ocean Research Institute (FL)

Ocean Watch of Palm Beach (FL)

Oceanic Society LA Chapter (CA)

Pacific Whale Foundation (HI)

Pelican Island Audubon (FL)

Project Environmentally
Safe Shores (FL)

Save Our Coast (LA)

Scuba Ventures Depth Chargers (AZ)

Sea Knights (CA)

Society for Historical Investigation
and Preservation (MICRONESIA)

St. Lucia Association
of Dive Operators (W INDIES)

Sunshine Pins (FL)

Underwater Society of America (NATL)

Western Wilderness Com'ttee (CANADA)

Wildlife Society of Oregon (OR)

EXHIBIT E

Project ReefKeeper

For the Protection of Coral Reefs and their Marine Life

May 1, 1990

J. Rogers Pearcy, Regional Director
Minerals Management Service / Gulf OCS Region
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

re: OCS Lease Sale 131, 135 and 137

Dear Mr. Pearcy:

As proposed by the Federal Minerals Management Service (MMS), 1991 Gulf of Mexico Outer Continental Shelf (OCS) Lease Sales 131 and 135 would result in devastating impacts to the Flower Garden Banks coral reefs and to the shelf-edge coral bottom banks of the Central and Western Gulf.

The environmental and diving communities are united in their support of comprehensive and uncompromising protection from any and all offshore oil operational impacts for the coral reefs, live bottoms and other biologically sensitive offshore habitats of the Gulf of Mexico.

Accordingly, this request for deletion of all Gulf coral habitat areas from offshore oil lease sale is presented on behalf of 18 national organizations with a combined membership of over 8 million, and on behalf of an additional 54 local, state, and regional organizations from throughout the United States.

Proposed Western Gulf OCS Lease Sale 135 intends to offer 4,755 unleased OCS blocks. This includes 8 blocks on or immediately adjacent to the Texas-Louisiana Flower Garden Banks, and 7 more blocks directly on other shelf-edge coral banks off Texas.

Proposed Central Gulf OCS Lease Sale 131 intends to offer 5,698 unleased OCS blocks. This includes 34 blocks on or immediately adjacent to shelf-edge coral banks off Louisiana.

We strenuously petition for deletion of those blocks (listed below) from OCS Lease Sales 131 and 135, under Alternative B of each of those sales.

16345 West Dixie Highway, Suite 1121 / Miami, FL 33160 / (305) 945-4845
— an affiliate of the American Littoral Society —

EXHIBIT E

On Behalf of the Following
Environmental, Diving, and Citizen Organizations
(Submit Final EIS to each officer listed below)

National Organizations

American Littoral Society — D. W. Bennett
Sandy Hook/Highlands, NJ 07732

American Oceans Campaign — R. Salaick
1427 Seventh St./Santa Monica, CA 90401

Center for Marine Conservation — J. Sobel
1725 DeSales St NW/Washington, D.C. 20036

Earth Island Institute — T. Steiner
300 Broadway (Ste. 28)/San Francisco, CA 94133

Environmental Defense Fund — R. Fujita
257 Park Ave So./New York, NY 10010

Friends of the Earth — B. Miller
218 D St. NE/Washington, D.C. 20003

International Marine Life Alliance/USA — V. Pratt
94 Station St.(Ste 645)/Hingham, MA 02043

National Association of Diving Instructors — K. Moon
4650 Arrow Hwy/Montclair, CA 91763

National Audubon Society — L. Raisbeck
801 Penn Ave. SE/Washington, D.C. 20003

National Coalition for Marine Conservation — B. McCloskey
Box 23298/Savannah, Ga 31403

National Parks & Conservation Association — B. Lienesch
1015 31 St. NW/Washington, D.C. 20007

National Wildlife Federation — E. Jones
1400 16th St. NW/Washington, D.C. 20036

Natural Resources Defense Council — L. Speer
40 W. 20 St./New York, NY 10011

Professional Association of Diving Instructors — B. Shuster
1251 E. Dyer Rd. (Ste. 100)/Santa Ana, CA 92705

Scuba Schools International — A. Ronning
2619 Canton Ct./Ft. Collins, CO 80525

Sierra Club — V. Newman
11194 Douglas Ave./Harriotsville, MD 21104

Underwater Society of America — R. D'Amico
10 Redfield St./Rye, NY 10580

YMCA (Scuba & Aquatics Division) — F. Wiegert
6083A Oakbrook Parkway/Norcross, GA 30093

State and Regional Organizations

Alachua Audubon Society — J. Winn
3126 NW 21 Ave/Gainesville, FL 32605

Alpine Divers — Wm. Cox
Box 1507/Santa Fe, NM 87504

EXHIBIT E

American Littoral Society of Florida — S. Holderman
New College USF/Sarasota FL 34243

Atlanta Oceans — J. Jordan
Box 12198/Atlanta, GA 30355

Beneath the Sea Association — R. D'Amico
P.O. 644/Rye, NY 10580

Central California Council of Diving Clubs — M. Gower
164 N. Bascom/San Jose, CA 95128

Clean Ocean Action — C. Zipf
Box 505/Highlands, NJ 07732

Conservation Council for Hawaii — R. Scudder
Box 2923/Honolulu, HI 96802

Conservation Council of North Carolina — S. Briedenbach
307 Granville Rd./Chapel Hill, NC 27514

Conservation Law Foundation of New England — E. Bateson
3 Joy St./Boston, MA 02108

Florida Audubon Society — B. Yokel
1101 Audubon Way/Maitland, FL 32751

Florida Keys Audubon Society — C. Kruer
P.O. Box 633/Big Pine Key, FL 33043

Florida Keys Izaac Walton League — S. Linskold
P.O. 465/Islamorada, FL 33036

Florida League of Anglers — F. Stoppelbein
P.O. Box 1109/Sanibel, FL 33957

Florida Marine Life Association — C. Sullivan
Box 1754/Big Pine Key, FL 33043

Friends of the Everglades — J. Podgor
202 Park St./Miami, FL 33166

Georgia Environmental Project — J. Hatfield
429 Moreland Ave. NE/Atlanta, GA 30307

Gulf Coast Fishermen's Environmental Defense Fund — S. Stewart
Box 701/Lake Jackson, TX 77566

Heal the Bay Association — D. Green
1650A Tenth St./Santa Monica, Ca 90404

Houston Audubon Society — J. Schiedler
2286 Shadowdale/Houston, TX 77043

Innerspace Explorers Club — D. Bussert
1214 E. Crawford St./Tampa, FL 33604

Island Conservation Effort — M. Walsh
P.O. 25272/Christiansted, St. Croix USVI 00824

LegaSea — M. Baker
Box 475/Ocracoke, NC 27960

Life of the Land — D. Heller
19 Niolopa Pl./Honolulu, HI 96817

Lone Star Chapter Sierra Club — B. Manachen
629 Euclid/Houston, TX 77009

Manasota 88 — G. Rains
P.O. Box 14119/Bradenton, FL 34280

Mid-Atlantic Scuba Diving Society — G. Rosazza
3600 Street Rd/Bensalem, PA 19020

Mobile Bay Audubon Society — M. Jones
724 Brannan Ct./Mobile, AL 36609

EXHIBIT E

Mudhole Divers — M. Bowles
13 Blackwood Ln./St. Peters, MO 63376

Nautilus Dive Club — J. Brown
12406 Incline Dr./Auburn, CA 95603

Northern Alaska Environmental Center — R. Blazer
218 Driveway/Fairbanks, AK 99701

Ocean Protection Coalition — E. Lewallen
Box 1385/Mendocino, CA 95460

Ocean Watch of Palm Beach — M. Long-Zwicker
3102 Reo Ln./Lake Worth, FL 33461

Oregon Natural Resources Council — A. Kerr
3921 SE Salmon/Portland, OR 97212

Pacific Whale Foundation — S. Kelley
101 N. Kihei Rd/Kihei, HI 96753

Panhandle Audubon Society — E. Webb
502 Maywood Dr./Marianna, FL 32446

Pelican Island Audubon Society — M. Bowman
Box 1833/Vero Beach, FL 32961

Project Environmentally Safe Shores — D. Driscoll
Box 1981/Venice, FL 34284

Reef Relief — D. Quirolo
1223 Royal/Key West, FL 33040

San Diego Sea Dogs — L. Whitten
3705 Avenida Johanna/La Mesa, CA 92041

Save Our Coast — N. Schoeffler
P.O. 2219/Lafayette, LA 70502

Save Our Shores — D. Weifley
P.O. 1560/Santa Cruz, CA 95061

Scuba Ventures Depth Chargers — B. Kelly
2813 E. McDowell Rd/Phoenix, AZ 85008

Scuba West Dive Society — L. Meyer
1200 Gatewood Ave./Spring Hill, FL 34608

Sea Knights — M. Forbes
6558 N. Callisch/Fresno, CA 93710

Sea Turtle Preservation Society — P. Bandre
3000 Pennsylvania St./Melbourne, FL 32904

South Dade Audubon Society — S. Zimmerly
15490 SW 240 St/Homestead, FL 33032

Student Environmental Coalition — R. Sosnowski
FAU Univ. Cntr./Boca Raton, FL 33431

Sunshine Fins Club — S. Kisco
P.O. 3936/Bay Pines, FL 33504

Texas Environmental Coalition — S. Stewart
Box 701/Lake Jackson, TX 77566

Texas Gulf Coast Council of Diving Clubs — C. Baughter
4426 Smooth Oak/Houston, TX 77053

Trustees for Alaska — R. Weimer
725 Christensen (Ste 4)/Anchorage, AK 99501

Underwater Safaris Marine Awareness Association — M. Miles
620 N. LaSalle (7th Floor)/Chicago, IL 60610

Wilderness Society (FLA) — S. Berryman
4203 Ponce de Leon/Coral Gables, FL 33146

EXHIBIT F

KEYS DIVE OPERATORS

UPPER KEYS

[illegible]

MIDDLE KEYS

[illegible]

LOWER KEYS

[illegible]

KEY WEST

[illegible]

EXHIBIT F

EXHIBIT G

Final Environmental Impact Statement Proposed Looe Key National Marine Sanctuary

October 1980

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Coastal Zone Management

EXHIBIT G

D. FLORIDA REEF TRACT DISTINCTIVE CHARACTERISTICS

As reported by Marszalek, et al (1977):

"The outer bank reefs are typically elongate features of variable vertical relief which occur at the shallow shelf edge between the 5 meter and 10 meter depth contours. Their long axes form a discontinuous line of reefs oriented parallel to the shelf edge. The northernmost reefs trend N/S and the reefs near Key West E/W reflecting the change in orientation of the arcuate shelf edge. Approximately 56 km of linear bank reefs are located north of Tavernier Creek (at the south end of Key Largo Key), 17 km of reefs in the middle Keys and 23 km in the lower Keys (west of Big Pine Key). A spur and groove system is developed on the seaward face of most of the bank reefs, with the spurs and grooves oriented generally perpendicular to the shelf edge and to the oncoming waves of the Florida Current. Spurs and grooves are best developed on outer bank reefs of the upper Keys and lower Keys; the spur and groove pattern on reefs in the middle Keys is generally less developed and exhibits a more random orientation."

EXHIBIT G

Although the outer reefs are highly variable in their degree of development, several distinctive features are held in common by reefs well advanced in the successional sequence leading to the mature, climax seral stage. These characteristics include:

- the presence of the elkhorn coral (Acropora palmata) at shallow depths. According to Shinn (1963), the spur and groove formations result from in situ growth of elkhorn colonies. A significant proportion of these formations is composed of encrusted rubble and skeletal material, derived from this species, which has been incorporated into the spur and groove system;

- a vertical coral zonation characterized in the deeper zones of the reef by large, massive heads of brain (Diploria spp.) and star corals (Montastraea spp.) and, in the shallow, more turbulent areas, branching colonies of Acropora (A. palmata and A. cervicornis), several types of fire coral, (Millepora spp.) and extensive colonies of the colonial zoanthids Palythoa and Zoanthus;

- a benthic macrobiota consisting of large populations of the sea urchin (Diadema antillarum, numerous species of cryptic ophiuroids (brittle stars), a diverse group of octocorals (sea fans and sea whips) and sponges and the calcareous green alga Halimeda opuntia;

- a highly diverse finfish fauna. Stark (1967) reported a total of 517 fish species from Alligator Reef, of which 389 are coral reef forms. Many of these fish populations are characteristic of particular zones or specific habitats on the reef while others have been found to be nonselective. There is an apparent dependency relationship between the abundant and diverse fish populations of the Florida Reef Tract and the variety of available habitat in the area, not the least of which is the highly productive seagrass community in Hawk Channel.

EXHIBIT H

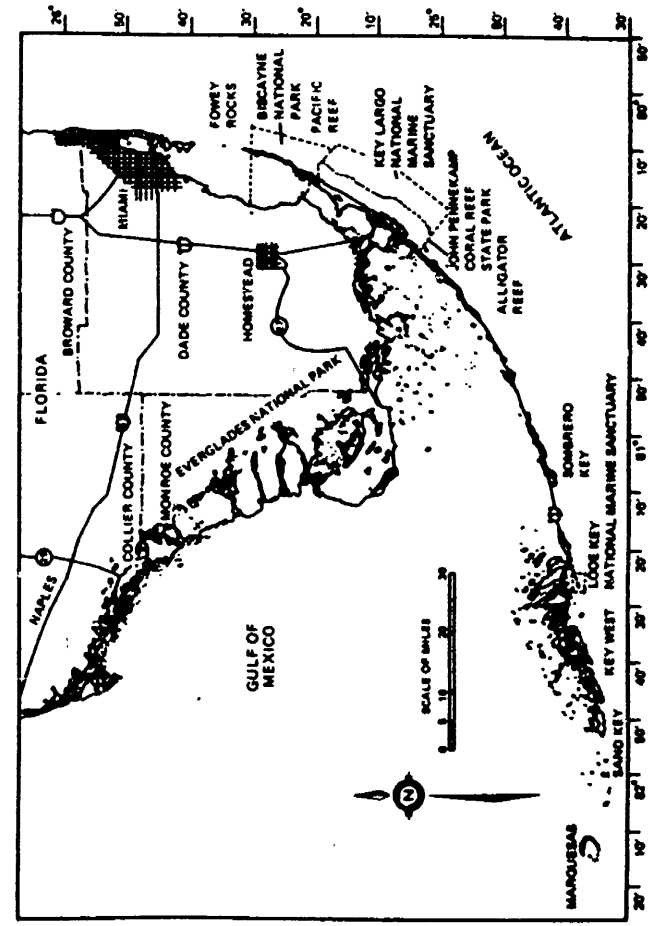


Figure 1. Tropical coast reef communities off south Florida.

Outer Continental Shelf
Oil & Gas

EXHIBIT I
Detailed
Decision Documents

5-Year Leasing Program
Mid-1987 to Mid-1992

Proposed Final

U.S. Department of the Interior
Minerals Management Service

April, 1987

Sensitivity of Marine Habitats to Oil Spills

The sensitivity of marine habitats (other than mud/sand bottoms) to spilled oil is discussed in the following sections. The major portion of each planning area consists of mud/sand bottoms which have a low sensitivity to spilled oil. The specific marine habitats discussed are submerged aquatic vegetation, submarine canyons, the shelf break zone, coral reefs, and live hard bottoms. The information summarized in the following discussions was used in calculating the relative environmental sensitivity of the OCS planning areas to spilled oil. Most of these marine habitats are generally too deep to receive large quantities of oil from the ocean's surface. The principal areas of sensitivity are shallow habitats such as beds of aquatic vegetation and coral reefs. The highly sensitive coral reefs, which occur only in the South Atlantic and Gulf of Mexico planning areas, do not occupy sufficient area to affect the sensitivity ratings significantly. Live hard bottom habitats may be sensitive in shallow areas, but information on the areal and depth distribution of these habitats is not available for most OCS planning areas. As a result of the low sensitivity of most marine habitats in the OCS planning areas, the sensitivity ratings for these habitats are lower than those for coastal habitats and marine biota.

Submerged Aquatic Vegetation

There are rooted seagrass beds as well as accumulations of macroalgae and microalgae forms in most of the subtidal, coastal portions of OCS planning areas. The seaward extent of their distribution is limited by the penetration of sufficient sunlight to support photosynthesis. Their abundance and distribution ranges from the estimated 3.7 million acres of seagrass beds in the Gulf of Mexico, 90 percent of which are off the coast of Florida, to the epontic algae forms which are found growing under ice in Alaska. There are also sparse assemblages of macrophytic algae distributed in the Arctic waters of Alaska (Minerals Management Service, 1983; Minerals Management Service, 1984a). These plants all play an important role in the productivity of the oceans. Their organic productivity is generally high and may actually exceed the production of intensively farmed agricultural crops. For example, productivity estimates for California kelp range from 3,000 to 22,000 grams/square meter. Their decomposition into detritus provides an important source of organic matter for the food web in the area. They also provide a substrate and habitat for many invertebrate and vertebrate animals, which in turn are eaten by other predators. Seagrass beds provide breeding, nursery, and feeding areas for a wide variety of commercially important shellfish and finfish (Minerals Management Service, 1983). Ice algae forms account for 25 to 30 percent of the primary production in areas of the Beaufort Sea (Minerals Management Service, 1984b). The effects of oil spills on true marine, subtidal forms are relatively unstudied. An assessment of effects on seagrass beds has been largely extrapolated from studies of intertidal and emergent plant forms found in coastal marshes and wetlands. The most severe impacts would occur in shallow (up to several meters) coastal areas where oil could come in close contact with the vegetation in an undiluted form. While most seagrasses and algae are resistant to oil contamination, repeated applications will destroy the root and rhizome systems and denude the area (Thomas, 1979).

EXHIBIT J

John Pennekamp Coral Reef State Park

WATER QUALITY MONITORING PROGRAM

ASSESSMENT OF WATER QUALITY DATA FROM FIVE STATIONS

Volume 1

November 1982 through December 1984

Renate H. Skinner
Eugene F. Corcoran

Florida Department of Natural Resources
Division of Recreation and Parks

February 1989

EXHIBIT J

Sensitivity of species to pollutants varies. In a contaminated marine environment, the overall effect may be a reduction in the numbers of individuals, or species, or both, resulting in an impoverished fauna and flora.

The results of these first two years of water quality monitoring clearly show that conditions in John Pennekamp Coral Reef State Park require remedial measures. The unexpectedly high amounts of pesticides and plasticizers throughout park waters indicate that the marine environment is stressed. The extent and severity of the problem must be determined through the continued assessment of water quality. Since there are ways of controlling pollution-associated problems and maintaining a healthy marine environment, these must be employed. Among the measures are regulating and controlling upland development next to park wetlands and important marine resources, prohibiting development in adjacent wetlands, limiting the use of pesticides on adjacent uplands, prohibiting pesticide use in the park, eliminating wastewater outfalls into park waters, controlling runoff, monitoring water quality, and enforcing anti-pollution regulations, as stated in 16D-2.011, when park waters are affected. The gain from employing these safeguards means nothing less than the preservation of the park's marine resources.

EXHIBIT K

NATIONAL UNDERSEA RESEARCH PROGRAM Research Report 88-5

Results Of A Workshop On Coral Reef Research And Management In The Florida Keys: A Blueprint For Action

James W. Miller
Editor

September 1988

U.S. DEPARTMENT OF COMMERCE
C. William Verity, Secretary

National Oceanic and Atmospheric Administration
William E. Evans, Under Secretary

Oceanic and Atmospheric Research
Joseph O. Fletcher, Assistant Administrator

Office of Undersea Research
David B. Duane, Director

EXHIBIT K

B. Indirect Impact

It is well documented that coral reef communities in many parts of the world are becoming endangered by waste products and nutrients (nitrates and phosphates) resulting from human activity (Kuhlman 1988). The Florida Reef Tract is no exception. Recent evidence clearly shows that the reefs in the Keys are neither as healthy nor productive as in the past (Dustan and Halas 1987). This decline can be attributed to waste sources such as: (1) polluted roadway runoff of stormwater, (2) eutrophication, (3) sewage and agrichemicals, (4) toxins and anti-fouling paints. The combined effects of these pollutants are damaging the coral reefs and carbonate platforms in the Keys as they have elsewhere (Smith et al., 1981). It should be noted that besides man-related eutrophication, there are natural sources such as accumulation of seagrasses on shorelines, etc. that also contribute to the problem.

The destruction wrought by excessive nitrates and phosphates takes several forms (Hallock and Schlager 1986). They stimulate growth of plankton which reduces water transparency which in turn limits the depths at which zooxanthellate corals and calcareous algae can grow, thus reducing carbonate production. Nutrients also can stimulate the growth of certain algae and animals that cause erosion of the reef structure. For example, studies in Hawaii showed that the "bubble alga" Dictyosphaeria bloomed and overgrew the coral reefs in Kaneohe Bay due to nutrient enrichment from a sewage outfall (Laws and Redalje 1979). A more recent study in Bermuda concluded that there is enhanced growth and increased biomass of the green alga Cladophora prolifera (Chlorophyta, Cladophorales) as a result of cumulative seepage of nitrogen-rich groundwaters coupled with efficient utilization and recycling of dissolved organo-phosphorus compounds (Lapointe and O'Connell 1988). Studies also suggest that the addition of high levels of phosphates to seawater may inhibit the calcification of corals and other calcareous marine organisms (Simkiss 1964, Kinsey and Domm 1974). There is further evidence that increased nutrients may stimulate overfeeding stress and increase predation on both coral larvae and adults. It is clear, thus, that while boat groundings, anchoring, diver abuse, and fishing are serious threats to the reefs, an additional major threat is the high nutrient content of runoff from coastal areas.

In a recent study conducted for NOAA, the Florida Department of Environmental Regulation, and Monroe County, the effects of on-site sewage disposal systems on groundwater and surface water quality were assessed (Lapointe and O'Connell 1988). The study

EXHIBIT K

demonstrated that the use of septic tanks and shallow injection wells in the porous geology of the Keys is accelerating eutrophication of surface waters. The mean concentration of ammonium and nitrate were 350-fold higher in developed vs. pristine groundwaters, while phosphate was some 60-fold higher. Maximum rates of contaminated groundwater discharge to surface waters occurs during the summer, when elevated tides and groundwater recharge enhances groundwater seepage. The resulting higher nutrient concentrations of surface waters in summer were significantly correlated with increased chlorophyll concentration (i.e. phytoplankton), suggesting that ever-increasing groundwater contamination is enhancing eutrophication and "greening" of the Keys nearshore waters.

While there is proof that eutrophication leads to an increase in algal biomass and the eventual damage and even destruction of coral reefs, the effects are reversible. In Kaneohe Bay, Hawaii, over 99% of the corals within an area of 880 hectares were destroyed by sedimentation from shoreline erosion and municipal sewage over a period of years. The sediment impact ended with the completion of the development phase around the Bay. Following the removal of the sewage site discharge, the corals are recovering (Kuhlman 1988).

EXHIBIT L

Threats to Keys water

COMES NOW the latest Monroe County water-quality study, this one from the Florida Keys Land and Sea Trust. The worst degradation is in Big Pine Key and Lower Matecumbe Key canals, in Marathon's Boot Key Harbor, a Florida Bay sea-grass bed, and at Sand Key coral reef south of Key West.

Biologists have warned for years that the clear water that nurtures reefs and fish is turning murky with run-off from poor sewage treatment, overdevelopment, and mainland agriculture's nutrient run-off.

That marine environment is Monroe's economic lifeline. Monroe was named an Area of Critical State Concern in 1974 precisely to protect its waters. In 1985, the state classified the Keys as Outstanding Florida Waters, supposedly preventing *any* human activity that would degrade the water. Yet every report since the 1970s shows that Keys waters *are* hurt by everything from U.S. Corps of Engineers-approved dredging to Key West's years of dumping sewage in the sea.

The county is now working on a comprehensive plan for growth in the next 20 years. Instead of considering the public planning sessions' soundest proposal — setting a growth cap based on the Keys' limited resources — the county commission attacked those hired to do the plan. Creating distractions is always easier for Monroe County politicians than actual governing.

SHORTSIGHTED COMMISSION

County Commissioner Doug Jones has hounded Don Craig, the director of growth management, out of office. Why? Because Mr. Craig charged the county $210 for printing his resumes, which he used on public business; and because he used to work for the consulting firm that the commission knowingly *voted* to hire to write the plan.

Now the consultant has resigned a week after Mr. Craig's resignation. Monroe County is begging off its June 1 state deadline for finishing the plan. County Administrator Tom Brown proposes borrowing staff from other counties to help.

The water-quality issue has little chance in such harum-scarum planning, meaning that soon there might not *be* any quality to study. Instead, studies will examine how government ineptness killed an ecosystem in one generation of careless development.

EXHIBIT L

Project ReefKeeper
For the Protection of Coral Reefs and their Marine Life

March 21, 1990

Thomas Pelham, Director
Fla. Dept. of Community Affairs
Tallahassee, FL 32301

Re: Monroe County CDMP

Dear Mr. Pelham:

From the attached enclosures, you will see that it appears that the Monroe County Commission and other officials are embarking on a course of action which underestimates -- or even totally discounts -- the cause and effect relationship between upland development and marine water quality.

As an organization exclusively dedicated to the conservation of coral reefs and the protection of their marine life, we are painfully aware of the critical relationship between marine water quality and the ecological health of coral reefs. Because near shore estuaries are the nurseries for numerous reef species, we are also greatly concerned about the impacts of upland development in Monroe County upon the area's nearshore marine environments.

We therefore request that your Department initiate inquiries and take appropriate action regarding this matter, in accordance with the legislative mandate which makes the Department of Community Affairs responsible for overseeing and approving county growth management plans.

Thank you very much for your consideration. We would appreciate a reply from an appropriate staff member regarding the actions which the Department will take or could take with regards to the situation in Monroe County.

Sincerely,

Alexander Stone

ALEXANDER STONE
Director

CC: B. Jack Osterholt/SFRPC

AS/sal

16345 West Dixie Highway, Suite 1121 / Miami, FL 33160 / (305) 945-4846
— an affiliate of the American Littoral Society —

EXHIBIT L

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399

BOB MARTINEZ
Governor

THOMAS G. PELHAM
Secretary

April 25, 1990

Mr. Alexander Stone, Director
Project Reefkeeper
16345 West Dixie Highway, Suite 1121
Miami, Florida 33160

Dear Mr. Stone:

Thank you for your letter expressing a concern for the water quality and ecological health of the coral reefs in Monroe County. The Department of Community Affairs (DCA) is acutely aware of the importance of the County's marine environment and have been actively involved for quite some time. We have worked with the county to establish a Water Quality Committee which is made up of federal, state, and local technicians who review county projects that may effect water quality.

DCA recently reviewed and denied a stormwater ordinance submitted by Monroe County because it allowed the direct discharge of stormwater into marine estuarine waters.

In accordance with Chapter 380, Florida Statutes, Governor Martinez is in the process of forming a Resource Planning and Management Committee. The Committee will appoint a Water Quality Committee for the express purpose of reviewing water quality in Monroe County in order to resolve existing and prevent future, problems which may endanger the resource.

In addition, Monroe County is required to submit their Local Government Comprehensive Plan to the DCA later this year. The management of stormwater run-off, as well as water quality implications from upland development will be reviewed by this agency as well as the Department of Natural Resources and the Department of Environmental Regulation.

EXHIBIT L

The water quality issue in Monroe County is a vital one and demands the attention of state agencies and resource protection organizations like your own. We welcome your input and look forward to a united effort on behalf of water quality in Monroe County.

Very truly yours,

Paul R. Bradshaw, Director
Division of Resource Planning
Management

PRB/tl

EXHIBIT M1

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shuster, Assistant Secretary

TO: Interested Parties

FROM: Roxane Dow, RD Chief
Bureau of Surface Water Management

DATE: March 27, 1990

SUBJECT: Notice of Second Public Workshop Concerning Triennial Review of State Water Quality Standards

The Department of Environmental Regulation announces a second public workshop to receive public comment on proposed revisions to Florida Administrative Code Chapter 17-3, as part of its triennial review of water quality standards. The first workshop was held on February 7, 1990. The second workshop has been scheduled as follows:

DATE: May 1, 1990
TIME: 10:00 a.m.
PLACE: Room 609
Florida Department of Environmental Regulation

The Federal Clean Water Act requires that all states review their water quality standards every three years. In keeping with the requirements of the 1987 Clean Water Act, the primary focus of the current review is the adoption of water quality criteria for toxic pollutants (the "priority pollutants"). Attachment I contains a more detailed description of the federal requirements.

The Department is proposing to adopt numeric water quality criteria for those toxic pollutants that are discharged to or are present in Florida waters and may be interfering with designated beneficial uses. Specifically, the Department proposes to adopt the U.S. Environmental Protection Agency's (EPA) recommended water quality criteria levels as amendments to Chapter 17-3, "Water Quality Standards." (Attachment I also contains an explanation of EPA's criteria recommendations.) Toxic pollutants in need of numeric criteria were identified from existing

Issues not pertaining to priority pollutants: Some commentors requested that we add to the triennial review some issues not related to priority pollutants. Due to time constraints, we do not propose to consider these issues at this time. However, they could be considered at a later date, if so warranted.

EXHIBIT M

Project ReefKeeper

For the Protection of Coral Reefs and their Marine Life

May 1, 1990

Ms. Roxane Dow, Chief
Bureau of Surface Water Management
Florida Department
of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

re: Proposed revisions
Ch. 17-3, F.A.C.
Water Quality Stds.

Dear Chief Dow:

This statement is presented on behalf of the American Littoral Society, Center for Marine Conservation, Environmental Defense Fund, Florida Audubon Society, Reef Relief, and the Wilderness Society -- all organizational members of the Coral Reef Coalition.

Coral reefs are ecological treasures which survive only if their very stringent water quality requirements are met. These unique marine ecosystems are particularly vulnerable to water quality degradation.

Existing state water quality standards are deficient in many critical respects to meet these special water quality needs of coral reefs. Therefore, the undersigned organizations call on DER to:

(1) recognize coral reefs and their associated estuaries as special ecosystems requiring more stringent water quality standards than those presently in force for general marine environments,

(2) identify, adopt and implement those more stringent water quality standards,

(3) apply those water quality standards to marine waters south of 26 degrees North latitude in the Gulf of Mexico and south of 27 degrees North latitude in the Atlantic, and

16345 West Dixie Highway, Suite 1121 / Miami, FL 33160 / (305) 945-4645
— an affiliate of the American Littoral Society —

EXHIBIT M

(4) immediately enforce any Outstanding Florida Water regulatory requirements that would result in improved water quality for coral reefs and their associated estuaries.

Sincerely,

Alexander Stone

ALEXANDER STONE
Project ReefKeeper
Director

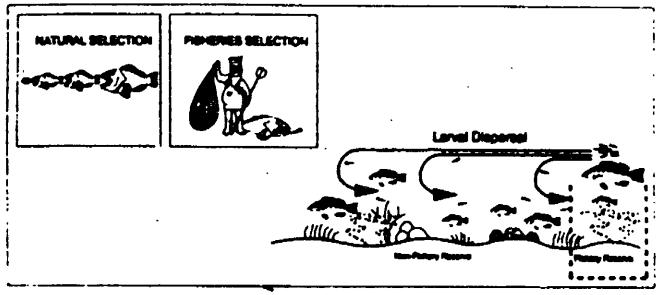
On Behalf Of:

D. W. BENNETT / American Littoral Society
WILLIAM MOTT / Center for Marine Conservation
RODNEY FUJITA / Environmental Defense Fund
WENDY HALE / Florida Audubon Society
DEE VON QUIROLO / Reef Relief
JAMES WEBB / The Wilderness Society

AS:hm
cc: cosignors above

EXHIBIT N

The Potential of Marine Fishery Reserves for Reef Fish Management in the U.S. Southern Atlantic



Prepared by:

Plan Development Team[1]
Reef Fish Management Plan
South Atlantic Fishery Management Council

February, 1990

Coastal Resources Division
Contribution Number CRD/89-90/04

[1] Contact: J.A. Bohnsack, Subcommittee Chair, Miami Laboratory, Southeast Fisheries Center, National Marine Fisheries Service, NOAA, 75 Virginia Beach Drive, Miami, FL 33149

EXHIBIT N

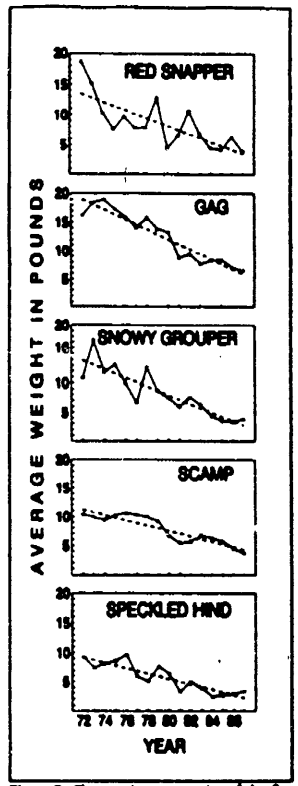


Figure 2. Changes in average size of the five initially largest important species caught in the U.S. southern Atlantic headboat fishery (Modified from Huntsman and Willis, in press).

Reef Fish Stock Assessment

The complexity of reef fisheries makes comprehensive data collection difficult, expensive, and often impractical. Reef fish stock boundaries are unknown and statistical data for many species have been aggregated into genus or family groups that make classical assessment of stock condition by species difficult or impossible. Legal limitations and funding availability often limit data collection efforts. In the U.S. southern Atlantic region, long-term data are not available for any reef fish species. The most complete data set began in the 1970's from the headboat fishery off North and South Carolina. It is unlikely that sufficient data will be available in the foreseeable future to do comprehensive stock assessments of all species in the reef fish management unit.

Despite a lack of quantitative and historical data, declines of many reef fisheries have been recognized worldwide that demand immediate attention (Appledoorn and Lindeman, 1988; Munro and Williams, 1985; Russ, 1985; Goodyear, 1988a, 1988b). These trends include declining landings for various segments of the fishery, greatly increased fishing effort, reduced average and maximum sizes, and changes in species composition. Similar population declines are being noted in the U.S. southern Atlantic region for many reef fishes (Huntsman and Willis, in press; Hommel, m.s.; Vaughn, et al., m.s.) and tilefish, a pelagopsaric species in the reef fish management unit (Hightower and Grossman, 1988; Berrue and Stender, m.s.). Eight of ten major species in the headboat fishery show declining trends in average size (Huntsman and Willis, in press) (Fig. 2 and 3). These declines are especially great for the five originally largest species (Fig. 2). Some species have become so rare in certain areas that statistical assessment is nearly impossible and special protection may be warranted, such as warsaw grouper (Epinephelus nigritus) (Huntsman and Willis, in press; Burton, 1989), Nassau grouper (E. striatus) (Bohnsack, unpublished data), and jewfish (E. itajara) (Gulf of Mexico Fishery Management Council, 1989).

EXHIBIT O

D R A F T

AMENDMENT NUMBER 1

TO THE

REEF FISH FISHERY MANAGEMENT PLAN

(Includes Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Analysis)

FEBRUARY 1989

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
5401 WEST KENNEDY BOULEVARD
SUITE 881
TAMPA, FLORIDA 33609
(813)228-2815

EXHIBIT O

4.2. Problems in the Fishery

4.2.1 Problems Identified in the FMP.

1. A substantial decline in reef fish stocks has occurred in some areas under the jurisdiction of the Gulf of Mexico Fishery Management Council. A known factor contributing to this decline is overfishing in many areas of the Gulf of Mexico by directed recreational and commercial users. Other possible factors contributing to the decline are:

   a. Reduction of habitat, both natural and man-made.

   b. A large bycatch in other fisheries.

   c. Major environmental changes (which can be documented for 1973-1975).

2. An insufficient data base exists to pinpoint the causes and magnitude of the decline by exact geographical area.

3. There is expanding competition between users competing for the resource and the space the resource occupies. This expanding competition is in part due to:

   a. Increasing fishing effort and the concentration of that effort in localized areas.

   b. Increasing fishing effort in other fisheries that have a bycatch of reef fish.

   c. Declining catch per unit effort in some areas.

   d. Introduction of new gear.

EXHIBIT P

VOLUME 4

COASTAL ZONE '89

Proceedings of the Sixth Symposium on
Coastal and Ocean Management

The Omni Hotel
Charleston, South Carolina
July 11–14, 1989

Edited by Orville T. Magoon, Hugh Converse, Dallas Miner,
L. Thomas Tobin, and Delores Clark

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EXHIBIT P

BENEFITS FROM CORAL REEF PROTECTION: LOOE KEY REEF, FLORIDA

John R. Clark[1]
Billy Causey[2]
and
James A. Bohnsack[3]

ABSTRACT

By 1988, there were approximately 135 protected coral reef areas in the Caribbean Basin and 123 in Southeast Asia. Major reasons for reef protection are enhancement of tourism, conservation of fish stocks, and prevention of shore erosion. This paper addresses conservation of fish stocks in the United States (Florida Keys) and the Philippines (Central Visayas). Changes in fish abundance on study reefs in both regions determined by quantitative, before-and-after, studies of fish abundance at protected coral reef areas are reviewed. Four Philippine projects to increase fish yields by creating inviolate replenishment zones, or reserves, are compared with one project in the United States to protect an intensively used coral reef for ecological, tourist and fishery purposes. In all cases, a marked increase in desirable species was observed after strict protection was applied. For example, snappers (Lutjanidae) increased by an average of 47, 219 and 2050 percent respectively in the Apo, Pamilacan and Balicasag Island projects in the Philippines. Snappers increased by 93 percent and grunts by 439 percent for the Looe Key National Marine Sanctuary in the U.S. Florida Keys. The success of these management experiments is most welcome now when the world's coral reefs are suffering increasing exploitation and diminishing faunal resources.

1. Senior Research Associate, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, Florida 33149

2. Manager, Looe Key National Marine Sanctuary, Florida Dept. of Natural Resources, Route 1, Box 782, Big Pine, Florida 33043

3. NOAA Fisheries, Southeast Fisheries Center, Miami Laboratory, 75 Virginia Beach Dr., Miami, Florida 33149

EXHIBIT P

Visitation in 1987 was approximately 41,000 persons and in 1988 the total was 51,300. These figures include visitors that were participating in all types of recreational and commercial activities.

On-site Sanctuary management at Looe Key began in the summer of 1982. Regulations were put into effect to ban the following: coral collecting and damage, spearfishing, use of fish or lobster traps, live collection of small "tropicals" and other damaging activities.

Enforcement of these regulations has taken several phases over the past seven years. Maintaining a philosophy of "interpretive law enforcement," the initial phase primarily utilized "officer presence" as a deterring influence; this approach combined resource protection with public education. After 1 1/2 years, enforcement entered a more aggressive phase with issuance of written warnings. The current phase consists of a combination of verbal warnings, written warnings, citations and arrests. The level of compliance on the part of the various user-groups is now very high. The best record of compliance has been for the commercial fishermen. The lesson learned is that a combination of clear demonstrations of management success and well-executed public information programs best enhances visitor compliance and public support.

The best way to demonstrate management success is to create a research program -- however modest -- to monitor the condition of the resource. The data and results of the monitoring program are used both for management purposes and for educational and interpretive programs (in order to gain the support of the public and alert the public of resource problems).

The earliest phases of the Sanctuary research program were focussed on resource inventories and photogrammetric and bathymetric surveys, as well as physical oceanographic studies. These helped establish baseline data for future monitoring projects. One of the most important components was the baseline vs. in-operation monitoring of fish stocks reported below. Presently, due to restrictions in funding, the research program is specifically used to address immediate management issues. As a problem becomes apparent such as a coral disease outbreak, a study is initiated (usually by consultants) to look into the problem.

EXHIBIT P

frequency-of-occurrence ($p < 0.01$, sign test). Among the four species too small to be speared, two increased and two decreased in abundance and in frequency-of-occurrence, which agrees with the 50% ratio expected by chance. Snappers as a group increased by 93 percent, grunts (Haemulidae) by 439 percent.

Discussion: Our interpretation of the results is that the abundance of the 15 species of spearfishing interest had been greatly reduced by spearfishing activities over the years. Five species were recorded at more abundance before the ban; three (gray snapper, hogfish, and Caesar grunt) were recorded at only 5-6% of their later abundance under protection; four (lane snapper and Spanish, bluestriped and white grunt) were recorded at 25-30%; and three (schoolmaster, yellowtail snapper,and porkfish) were recorded at 45-86%.

Three explanations for increased fish abundance after the ban are: (1) immigration to the reef of fishes from surrounding areas, (2) increased growth and survival of fishes settling on the reef, and/or (3) changes in behavior making existing fishes more conspicuous. The last explanation is least important in this study because the fishes selected for comparison were non-cryptic and reasonably conspicuous, if present. We did observe that some fishes were less agitated and more easily approached by divers after the spearfishing ban as we expected, based on John Randall's observation of fish behavioral changes when protected from spearfishing.[5] Abundances and frequency-of-occurrence estimates may be confounded by mortalities caused by hook and line fishing (which is permitted in the Looe Key Sanctuary) but we could not find data for study of the impact of line fishing mortality on these populations. And, of course, some natural change favoring fishes at Looe Key might have occurred between our "before" and "after" collections.

In summary, the abundance of many fish species increased in the two years following Sanctuary designation in 1981. It is argued here that the sanctuary spearfishing ban is a major reason for the increase and that the ban was an effective management measure for the important, larger, species. The banning of wire fish traps may have contributed, particularly for Haemulidae which are known to be vulnerable to traps.[6] Because most reef fish live for many years, the full effect of the spearfishing regulations may not be reached for a much longer time period.

EXHIBIT P

GENERAL REEF MANAGEMENT PROGRAM

The installation of 52 mooring buoys was one of the first active management projects initiated at Looe Key. Obvious success from this project can best be measured by the noticeable reduction in the extent of anchor damage suffered by corals, especially in the fore reef habitat. Prior to the installation of the mooring buoys in 1984, it was not uncommon to find 40 or 50 percent of the vessels visiting the Sanctuary to have their anchors placed in coral.

The prohibition on the harvest of corals by both souvenir collectors and professionals appears to have been successful. During routine resource monitoring efforts in December 1985, large numbers of coral recruits (particularly Acropora cervicornis) were noted. The size and extent of branching of the coral colonies suggested that the corals were between one and three years old. Spacing, lack of large established parent colonies, and the characteristics of the basal attachment of the new colony were all criteria that suggested the new recruits were derived from sexual recruitment and not fragmentation. Management strategies that may have been responsible for the increase in coral recruitment were enforcement of Sanctuary regulations, along with statewide and Federal rules, that prohibit the taking and/or damaging of corals.

The seagrass beds of the reef flat habitat at Looe Key were known to have a large population of queen conch (Strombus gigas) in the early to mid-1970's. However, just prior to Sanctuary designation in 1981, the population was noticeably depleted. After prohibition of conch taking became effective (May, 1984) routine monitoring revealed a considerable increase in the population. Large numbers of spawning age conch can now regularly be sighted on the reef flat.

REFERENCES

1. Salm, R.V. and J.R. Clark. 1984. Marine and Protected Areas: A Guide for Planners and Managers. IUCN, Gland, Switzerland. 302 pp.

2. OAS. 1989. Inventory of Caribbean Marine and Coastal Protected Areas. Organization of American States, Dept. of Reg. Development. Washington, D.C. 146 pp.

3. White, Alan. 1987. Information supplied as unpublished manuscripts, "Marine Management" and "Marine Parks and Reserves."

Center for Marine Conservation
Formerly Center for Environmental Education, Est. 1972

WRITTEN STATEMENT OF JACK A. SOBEL

DIRECTOR OF THE HABITAT CONSERVATION AND

MARINE PROTECTED AREAS PROGRAM OF THE

CENTER FOR MARINE CONSERVATION

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY AND THE GREAT LAKES

AND THE

SUBCOMMITTEE ON FISHERIES, WILDLIFE CONSERVATION AND THE ENVIRONMENT

OF THE

HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES

CONCERNING H.R. 3719,

THE FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990

May 10, 1990

Endorsed by:

Natural Resources Defense Council

National Audubon Society

National Association of Underwater Instructors

Ocean Alliance

Florida Keys Fishing Guides Association

Defenders of Wildlife

1725 DeSales Street, NW Washington, D.C. 20036 (202) 429-5609 Telefax (202) 872-0619

Introduction

Mr. Chairman, members of the Committee, good afternoon. My name is Jack Sobel and I am the Director of the Center for Marine Conservation's (CMC's) Habitat Conservation and Marine Protected Areas Program. CMC is a non-profit citizen's organization dedicated to the conservation of living marine resources and their habitats. We have a 10-year history of active involvement on issues concerning marine protected areas with an emphasis on the National Marine Sanctuary Program (NMSP). We would like to express our thanks for this opportunity to present our views on H.R. 3719, the Florida Keys National Marine Sanctuary Act of 1990.

Background

We strongly support the creation of a Florida Keys national marine sanctuary to provide comprehensive, long-term protection for Florida's magnificent coral reef ecosystem while allowing for the wise use of its valuable resources. The spectacular coral reefs, sea grass meadows and mangrove forests that together make up this ecosystem are unparalleled in the continental United States and matched by only a few places in the world. These tremendous marine environments support rich biological communities possessing extensive conservation, recreational, commercial, ecological, research, educational, and esthetic values which give this area special local, national and international significance.

Coral reef systems are the marine equivalent of tropical rain forests in that they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities and possess high value to human beings if properly conserved. Like rain forests, coral reefs are increasingly threatened with impacts from destructive human activities that damage their biological integrity and reduce their human values. In many cases, destructive activities sacrifice long-term sustainable values for immediate short-term returns. Increasingly, human activities within the coastal zone are interfering with one another and with natural processes. The marine areas surrounding the Florida Keys are a case in point where uncontrolled and detrimental activities are affecting current and future resource values. As human activity in the coastal zone continues to escalate, a mechanism is needed to comprehensively protect the marine resources of the Florida Keys while promoting their wise use.

The purpose of the NMSP is to provide such a mechanism for comprehensively protecting areas of special national significance. Clearly, the Florida reef system qualifies. The strength of the NMSP is that the normal sanctuary designation process requires the development of a comprehensive management plan that considers all of an area's resources and all activities which might affect them. This comprehensive management approach differs from other marine programs which focus on individual

components or activities. The normal designation process also provides extensive opportunities for public input and involvement in the development of the management plan. We feel strongly that the comprehensive management approach and opportunity for public involvement should be retained regardless of whether a sanctuary is designated legislatively or administratively.

H.R. 3719 and Vessel Traffic

The rash of vessel groundings that occurred last fall and caused extensive damage to Florida's coral reefs highlighted their sensitivity and the need to regulate human activities in order to protect them. Representative Fascell's prompt introduction of H.R. 3719, the Florida Keys National Marine Sanctuary Act, to address the issue of vessel groundings is laudable. Sanctuary designation would complement and strengthen efforts already under way by the Coast Guard to secure International Maritime Organization (IMO) designation of much of the Florida reef tract as an area to be avoided. Reliance on the Marine Sanctuary Act for the establishment of area(s) to be avoided would have several advantages over the path currently being pursued. First, it could provide authority to mandate vessel compliance with areas to be avoided. Second, it could provide the Coast Guard with specific authority to enforce such mandatory areas to be avoided. Third, it could provide and/or strengthen civil penalties for violations within three nautical miles and extend them to areas beyond three nautical miles of the coast. Fourth, in cases involving resource damage, it would ensure that recovered damages were first applied to the damaged area rather than the general treasury. Fifth, it could simplify litigation in such cases, since NOAA as the cognizant agency for civil litigation in reef damage cases would be able to assert violation of its own regulations rather than those of another agency.

We suggest extending the seaward extension of the sanctuary out to the 600-foot contour. This extension would have several advantages with regards to vessel traffic. First, it would provide a small additional buffer that would serve as a safety factor for ships that err off course. The proposed 300-foot contour boundary comes within two to three miles of the reef in many areas leaving very little time for an errant ship to correct its course before plowing into the reef. The value and fragility of the reefs argue for such a safety factor. Extending the seaward boundary out to 600 feet would also make it consistent with both the Coast Guard's area to be avoided proposal and the boundary proposed in Senator Graham's bill, S. 2247. We also believe that it is important to include areas on the north side of the keys to prevent groundings such as the Mavro Vetranic which occurred last fall in Fort Jefferson National Monument. Inclusion of areas on the north side of the keys are also important from a habitat perspective as will be discussed later.

Additional Threats and the Need for Comprehensive Management

Although vessel groundings provide one of the most striking examples of how human activities can impact the reef, can be devastating to localized reef areas, and can be catastrophic to the reef system as a whole if they involve the release of oil or other toxic compounds; they are but one of several serious threats to the Florida reef system and it is likely that other more subtle threats may pose an even greater risk to the area. In recent years, the health of the Florida reef system has been deteriorating at a frightening rate. Living coral cover is declining, the incidence of coral diseases is increasing, algal overgrowth is displacing coral in many areas, and the king of the reef, the jewfish has all but disappeared. Determining the cause of most of these symptoms with certainty is difficult. However, declining water quality is a prime suspect for many of the problems. It is also likely that cumulative impacts from a variety of both natural and anthropogenic stresses are contributing to the problem. One thing is clear: controlling vessel traffic will not by itself safeguard the reef.

The sanctuary program is distinct among marine programs for its authority to develop a comprehensive management plan for an area that addresses all of its resources and activities. The Florida reef system is in dire need of such an approach. The proposal to designate the entire reef system as a sanctuary provides an opportunity for such comprehensive protection. However, as originally introduced, H.R. 3719 bypasses the normal designation process and does not provide for the development of a comprehensive management plan. Consequently the legislation does not address other important threats to the reef ecosystem. In order to ensure the meaningful protection this valuable area needs and deserves, the sanctuary legislation must require NOAA to develop a comprehensive management plan that addresses all threats to the area's resources.

The imminent threats to the Florida reef system including vessel groundings combined with the slow administrative designation process justify immediate Congressional action to designate this sanctuary. However, such Congressional action should not short circuit the normal requirement that NOAA develop a comprehensive management plan for the sanctuary. We prefer the approach taken in the Graham bill, S.2247. This bill provides Congressional designation of the sanctuary, but also builds on the existing NMSP procedures requiring NOAA to develop a comprehensive management plan for the area including provisions requiring extensive public participation and Congressional review. We feel that the comprehensive management plan is the heart of any sanctuary designation and must be retained.

Prohibitions on Certain Activities

Despite our belief that most sanctuary regulations should be developed as part of the comprehensive management plan process discussed above, we support the inclusion of two types of

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regulations in the legislation. The first is a prohibition on commercial cargo traffic within sanctuary waters that would make allowances for permitting vessel operation within federally maintained or marked channels. The justification for doing this legislatively is to prevent any additional damage due to vessel groundings from occurring while the management plan is being developed. We also support a legislative prohibition on hydrocarbon and mineral extraction or exploration. The justification for legislating such a prohibition is that these activities are clearly incompatible with the purposes of the sanctuary and, based on experiences with other sanctuaries, relying on the management plan to ban such activities is unreliable and can result in untimely delays in the release of a management plan.

Comprehensive Management Plan

Although S. 2247 builds on existing procedures for developing a comprehensive management plan, it also provides NOAA with some additional direction regarding certain items that should be addressed in the development of this plan. We believe this direction is constructive, will facilitate the development of a better management plan and should be incorporated into H.R. 3719. The utility of this direction has been confirmed in conversations with NMSP personnel.

Some critics have charged that sanctuaries are designed to close off an area to all activities. Nothing could be further from the truth. Despite their name, sanctuaries are open to many recreational and commercial activities. In fact, sanctuaries are required to facilitate all uses that are compatible with their primary purpose of resource protection. Only destructive and deleterious activities are prohibited or regulated within a sanctuary. An important part of developing the management plan is to identify what uses are incompatible with the sanctuary and should be prohibited or regulated. A successful management plan maximizes long-term sustainable values over short-term exploitation.

We believe that a management strategy for compatible uses incorporating geographical and temporal zoning might be a very useful part of a management plan and should be considered. Such a strategy could permit variable levels of regulation throughout the sanctuary, allowing few restrictions in large areas while other core areas would receive greater levels of regulation. Such core areas might serve as reserves that would help replenish other more heavily used areas. A zoning system could also be used to set aside specific areas for specific purposes if this were considered desirable. Input from user groups would be important in developing such a system. The Great Barrier Reef Marine Park in Australia uses such a zoned management system.

A critically important part of the management plan for this area must be a strategy to ensure protection of the area's water quality. Continued deterioration of water quality around the

keys probably represents the greatest threat to the health of this ecosystem. In developing this strategy, it may be advisable to have NOAA coordinate its work with EPA, state and local agencies.

Size, Boundaries and Manageability of the Sanctuary

The spectacular Florida Reef Tract is large, one of the largest coral reef systems in the world. Consequently, a sanctuary must also be large in order to provide truly comprehensive protection. In the past, proposals for large sanctuaries have generated concern over manageability. This concern was expressed in the 1984 Amendments to Title III of the Marine Research, Protection and Sanctuaries Act (MPRSA) and in the NMSP regulations. We would argue strongly that a large Florida reef sanctuary that includes as much of the system as possible would be much more manageable than smaller piecemeal sanctuaries.

The criteria for sanctuary designation outlined in Title III of the MPRSA as amended state that "the area should be of a size and nature which will permit comprehensive and coordinated conservation and management" and that "the Secretary shall consider the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities." Applying these criteria to the Florida reef system, one must define an area which includes not only the entire reef tract itself, but also the associated seagrass beds and mangrove areas which many reef organisms rely on for feeding and nursery areas. The tight coupling and interdependence of these areas with the reef make it imperative that they be considered as parts of a single unit. Reef organisms which move between these areas cannot be protected unless all three areas are protected. Furthermore, movement of water between these areas makes their protection important even to organisms which do not travel.

With regards to manageability, it is clear that to deal with the myriad threats facing the reef system as a whole including vessel traffic, use issues and water quality, a system-wide approach is necessary. Despite their successes, many of the problems facing the existing sanctuaries at Key Largo and Looe Key stem from their small size. Designating a keys-wide sanctuary incorporating as much of the entire reef-seagrass-mangrove system as practicable, would make an effective ecosystem management approach possible. Using a zoned management approach with variable levels of management for different areas would make a large sanctuary manageable. Large areas within the sanctuary would not need additional enforcement or monitoring. Cooperation and coordination with state and other federal agencies would also facilitate this effort. The Great Barrier Reef Authority manages an area many times the size of the Florida Keys.

We therefore recommend that the sanctuary boundaries be

drawn to include the entire Florida reef tract and associated seagrass and mangrove habitats so that they can be effectively managed as a unit and protected for future generation.

Funding

Effective management of an area this size and ultimately the success of such a sanctuary will depend on adequate funds being available to develop and implement the management plan. Lack of adequate funding has long hampered the sanctuary program. Although Congress did reverse a trend of declining appropriations for the program by providing an increase last year, the program remains poorly funded. Appropriations do need to be increased for the program and we strongly recommend fully funding the program at $5.5 million. However, even if fully funded, additional monies will be needed to successfully implement a unified Florida Keys marine sanctuary.

Two changes made during the 1988 Reauthorization of the program provide opportunities for developing creative approaches to funding a Florida Keys sanctuary. The first of these allows the program to accept donations from private sources. This provides a tremendous opportunity for developing public-private partnerships which could provide a funding mechanism to support such a sanctuary. We feel that this approach has merit and may be the most promising vehicle for doing so. The 1988 amendments also provided the program with concession authority and the ability to charge for use permits. Such approaches also have potential and should be explored as possible funding mechanisms. Including affected user groups in the development of any such mechanism is essential to its success. Funds raised using either of these approaches should be viewed as supplementing, not replacing, appropriated funds. The federal government does have a role to play in supporting marine conservation.

Thank you.

Coral Reef Coalition

May 8, 1990

Dennis Hertel, Chairman
Subcommittee on Oceanography
2442 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Hertel,

In the past few months, the undersigned organizations and individuals have established the "Coral Reef Coalition" in response to the growing threats to the south Florida coral reef tract, one of our nation's most valuable natural areas. Not only is it an ecological wonder with biological diversity on par with the world's tropical rainforests, but also the reefs of south Florida are of critical economic importance to the region. Unfortunately, this coral reef ecosystem is under seige from many threats, ranging from water quality problems to destructive vessel groundings.

The coalition supports the establishment of federal legislation that would designate this unique area a national marine sanctuary, thus providing for long-term comprehensive protection and management of the area's spectacular marine habitats. Individual coalition members will submit testimony and comments detailing specific recommendations for the improvement of the legislation currently under consideration.

Thank you.

Sincerely,

Project ReefKeeper/American Littoral Society
Florida Keys Chapter, Izaak Walton League
Coral Reef Community Foundation
Friends of the Everglades
Environmental Defense Fund
Seacamp Associates, Inc.
The Wilderness Society
Florida Keys Marine Sanctuaries, Inc.
Oceanic Society
Greenpeace
The Nature Conservancy
Defenders of Wildlife
Florida Keys Audubon Society
Manasota 88
Florida Audubon Society
Ocean Alliance
Last Stand
National Audubon Society
Sierra Club - Florida Chapter
Florida Keys Fishing Guides Association
Reef Relief
Center for Marine Conservation

Hearing on H.R. 3719, "The Florida Keys National Marine Sanctuary Act of 1990;" May 10, 1990, 2:00 pm, Room 1334, Longworth House Office Building; Subcommittee of Oceanography and the Great Lakes and the Subcommittee on Fisheries and Wildlife Conservation of the U.S. House of Representatives Committee on Merchant Marine and Fisheries.

Testimony of: **Dr. John C. Ogden**, Director
Florida Institute of Oceanography
830 First Street South
St. Petersburg FL 33701

Extending approximately 200 nautical miles southwest from Fowey Rocks to the Dry Tortugas lies the Florida Keys coral reef tract, the only coral reef within the contiguous United States. It is recognized in Florida and the nation as a major resource for tourism, recreational and commercial fishing, salvage, and protection of biological diversity. It is also increasingly recognized that this coral reef is suffering from the direct and indirect impacts of the rapidly increasing human population of South Florida. Nearly everyone agrees that something must be done, but there is little agreement on the actions needed.

The bill H.R. 3719 would create a Florida Keys Marine Sanctuary (1) administered under the existing Marine Protection Research, and Sanctuaries Act of 1972. The geographic scale of the proposed sanctuary, encompassing the whole coral reef tract, recognizes the value of the resource, the scale of its problems, and the scale upon which we must work to solve them. The coral reefs of the Keys cannot be protected or managed in small sections and parks or without attention to the surrounding marine ecosystems, particularly seagrasses, mangroves, and the adjacent land masses. The whole region might well be termed the "Florida Keys Seascape," and it <u>is</u> the management unit.

Unfortunately, H.R. 3719 is directed only at the recent groundings of large ships, all of which occurred within existing marine sanctuaries and parks. The proposed Florida Keys Marine Sanctuary, if limited by its present language to regulation of ship traffic, will have little impact on the alarming, continuing decline of the coral reefs of South Florida.

Collisions between ships and coral reefs are dramatic, but relatively insignificant to a reef over 200 miles long. Coral reefs are remarkably robust and resistant to physical damage, to smashing by anchors, and to chipping away by divers and collectors, provided the damage isn't too persistent or

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1. The pejorative term "sanctuary" should be replaced with one more descriptive of the situation, for example, "zoning plan."

concentrated. They thrive in tropical seas where hurricanes are a regular occurence, visiting their havoc on the average every 20 years or less, and often destroying square miles of coral reefs. In fact, scientists believe that periodic disturbance is critical for the maintenance of their great diversity of life. Recovery from such damage may be expected in clean, unpolluted water. It is here that concerned citizens, managers, and scientists are beginning to agree that the real problem lies.

At recent meetings concerned with the health of the marine environments of South Florida, a consensus has emerged that the fate of the coral reef is inevitably tied to the land of the Florida Keys and South Florida and that what we do there is having a slow but inexorable impact "downstream" on the reef tract. Poor land use practices, sewage, agrichemicals, the contamination of groundwater, and runoff of soils have poisoned the normal growth of corals and promoted the growth of algae and phytoplankton which overgrow and smother corals on the reef and cloud the normally clear water, blocking sunlight which is essential for healthy coral reefs. Thus, we must gain greater understanding of the interaction of land and sea in the Keys, and we must do this at the geographic scale of the whole Florida Keys Seascape (2). The creation of a sanctuary, or zoning plan, is a critical first step.

The Great Barrier Reef (GBR) of Australia provides us a valuable example of the approach that is needed in the Florida Keys. In the early 1970's Australia began to recognize the GBR as a resource of national significance that must be protected. The Great Barrier Reef Marine Park Act was passed in 1975. As in the Keys, the GBR resources were used by many potentially conflicting groups, and the Act established a Zoning Plan encompassing approximately 800 nautical miles of coral reefs and extending all the way to shore (3). The draft Zoning Plan divided the GBR into 4 geographic sections within which zoning would be applied using the following categories: General Use Zones A & B, Marine Park Zones A & B, a Scientific

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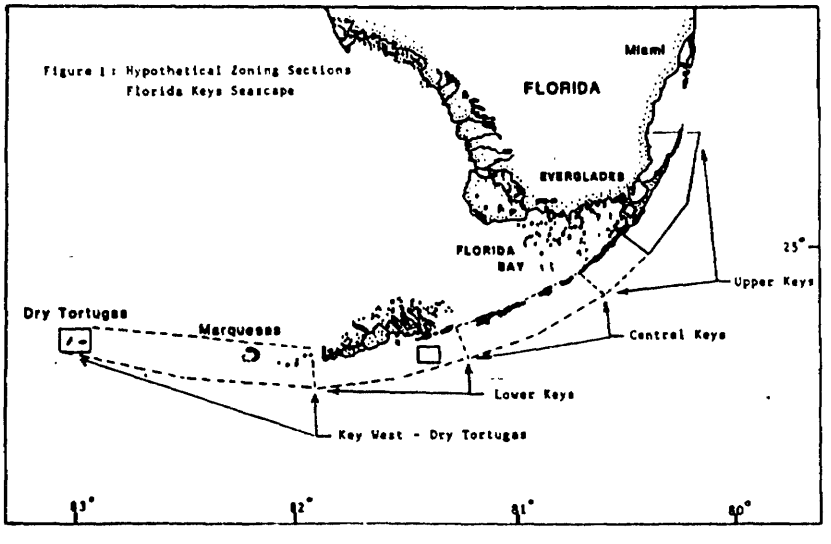
2. Recently scientists and managers have concluded that a research and management framework must be created at the geographic scale of the whole Keys seascape. The Florida Institute of Oceanography (FIO), for example, in partnership with the Florida Department of Natural Resources (DNR), NOAA's National Data Buoy Center (NDBC), and scientists from four universities, has instituted with substantial support from the MacArthur Foundation a program of sustained ecological research centered on a series of automated, satellite-linked monitoring stations extending from Fowey Rocks to the Dry Tortugas.
3. While the GBR is universally recognized as the largest coral reef in the world, the region zoned is only about 4 times the size of the proposed Florida Keys Marine Sanctuary.

Research Zone, and a Preservation Zone. Also in the plan were Designated Areas (e.g. replenishment, defense, shipping, and special management) that concerned specific problems or short-term uses.

The draft zoning plan was sent to all users of the GBR (4) who then had an opportunity to go over maps and comment on proposed zones. The end result was a Great Barrier Reef Marine Park Authority and a set of four zoning plans, one for each geographic section of the GBR.

The Australian example can serve to guide a revision of H.R. 3719. The scope of the bill should be expanded to include other impacts on the coastal seascape including tourism, fishing, and exploration. Following an environmental assessment report and public hearings, a draft Zoning Plan would then be issued for detailed public comment. The final plan would be responsive to all user groups, would incorporate their concerns, and would predispose public acceptance of and participation in regulation and preservation of a resource of great local and national significance.

Such a zoning plan would largely mirror present public use patterns of the Florida Keys Seascape. I have taken the liberty of defining 4 hypothetical zoning sections on the map of the Florida Keys (Figure 1).



4. As a one-time visitor to Lizard Island Field Station on the northern GBR in 1979, I was astonished to receive the draft zoning plan for comment several years after my visit.

1. The Upper Keys including Biscayne National Park, John Pennekamp State Park, and the Key Largo National Marine Sanctuary would be zoned for parks, tourism, and limited fishing. Some smaller sites might be set aside for general use, preservation, and research.

2. The Central Keys, largely inaccessible to tourists could be zoned for general use, including regulated spearfishing, line fishing and trolling, trap fishing, and permitted exploration and salvage.

3. The Lower Keys to Key West would be a mosaic of park and general use areas, largely following present use patterns and including Looe Key National Marine Sanctuary.

4. Key West - Dry Tortugas, including Fort Jefferson National Monument, would be largely regulated for general use with the Dry Tortugas set aside for park, preservation, and research.

My objective is not to impose a zoning scheme on the Keys, but to point out that a Zoning Plan incorporating present user group concerns would most likely duplicate the existing, and largely accepted, use patterns. Thus, the daunting task of creating an acceptable Plan might not be as contentious or impose as much hardship as might be expected.

The principal strength of H.R. 3719 is that it encompasses the whole Florida Keys Seascape which is the suitable management unit for long term survival of resources that are universally valued and universally viewed as being in decline. If the bill is broadened to include major impacts on the Florida Keys Seascape and a zoning plan to regulate them, we will have gone a long way to insuring future preservation, use, and enjoyment of a unique section of the coastline of the U.S.

THE FOLLOWING APPENDIX WAS SUBMITTED BY LYNN DAVIDSON, THE HABITAT POLICY COORDINATOR FOR GREENPEACE

APPENDIX I -- The Need for Coral Reef Protection

Coral reefs and their associated coastal ecosystems (mangrove wetlands and seagrass beds) are being destroyed throughout the Florida Keys. The principal causes of human destruction can be divided into two categories, land-based and water-based. Land-based causes of coral reef degradation are by far the most serious and, at the same time, the most difficult to correct. Nevertheless, it is important to address problems in both categories in order to protect the region's fragile coastal ecosystems. It is also important to realize that additional damage results because the destructive forces work in combination with each other. Along with immediate reef mortality, coral diseases are often the result of these combined activities. The following is a list of some of the most pressing concerns:

Ultraviolet Radiation -- Although generally thought of as an atmospheric problem, increased ultraviolet radiation is the result of activities on land that have depleted the protective layers of ozone, permitting dangerous amounts of radiation to filter through. It has been recently demonstrated that ultraviolet radiation increases in latitudes near the equator and penetrates sea water more readily than was previously recognized. The radiation is lethal to many shallow-water organisms at equatorial and intermediate latitudes. Thus the Florida coastal environments are especially vulnerable to the harmful effects of ozone depletion (Johannes & Hatcher, 1986).

Greenhouse Effect -- The burning of fossil fuels is not only polluting the atmosphere, it is also thought to be the cause of global warming, possibly resulting in a rise of sea levels. This is relevant to coral reefs in two ways. First, corals may help prevent the effects of global warming by their capacity to absorb and retain carbon dioxide; nevertheless, if global warming continues to accelerate despite such natural controls the resulting sea-level rise may drown coral reefs, which can grow upward at a maximum rate of about 10 millimeters per year (Grigg, 1989).

Farm and Chemical Run-off -- Agricultural chemicals retard reproductivity and growth among corals. Agricultural practices also add to soil erosion and excessive nutrients in the waters, posing further threats to corals (Kohn, 1989). Aerial crop spraying and other uses of herbicides can also have serious effects on coral even at very low concentrations (Kenchington, 1985). Water samples taken in John Pennekamp Coral Reef State Park, in Florida, showed alarmingly high concentrations of five toxic insecticides posing a threat of "great harm to the marine environment, particularly the coral reefs" (Tasker, 1989).

Sewage and Detergents (nitrates and phosphates)--Scientists have indicated that sewage and phosphate detergents play a primary role in pollution of nearshore waters and coral reefs. Growth of plankton is stimulated, reducing water clarity and increasing algal blooms which compete with corals and other sea life for

light and oxygen. This unnaturally stimulated growth can harbor certain disease-carrying organisms that cause erosion of the reef structure (Lapointe, 1989).

Mangrove and Seagrass Removal -- Coral reef communities, no matter how rigorously managed, will decline if adjacent mangroves are cleared or seagrass beds dredged and the resulting sedimentation envelopes the reefs (Johannes & Hatcher, 1986).

Thermal Pollution -- The release of heated waste water is more stressful in the tropics because tropical marine organisms live at environmental temperatures closer to their upper thermal limits than do temperate ones (Johannes & Hatcher, 1986).

Fresh Water Infusion -- Large, sudden releases of fresh water, particularly from the one thousand miles of drainage systems from the Florida Everglades, can change the salinity balance in ocean waters and effect the reef ecosystem.

Offshore Mineral Mining -- Exploration and exploitation of the sea bed and its subsoil causes turbidity and sedimentation. Offshore oil development is a major source of chronic pollution. The effects of the blow-out of Ixtoc I in the Gulf of Mexico (the largest marine oil spill in the history of oil exploration) are well documented (Jernelov, 1981). Coral reefs, mangroves, seagrasses, and associated species die when covered with oil. Corals stressed by oil are believed to be more susceptible to disease and are likely to grow and reproduce more slowly than unaffected coral. A chain reaction could continue long after any oil is present in the environment and sub-lethal, long-term effects may be more important than initial mortality (Jackson, 1989).

Oil Pollution from Ships -- Significant levels of oil pollution exist throughout the Florida reef tract. Large amounts of this pollution come from tanker ballast washings in the region. This oil pollution causes serious tar contamination on windward beaches, high levels of floating tar in the water and very high levels of dissolved hydrocarbons in surface waters (Atwood, 1987).

Ship Groundings -- Both immediate and long-term damage can result from ship groundings. Some of these include: direct destruction of the coral reef by the ship grounding, debris and petroleum products on the reef, increased sedimentation caused by the continual rocking of the hull on the reef and large pieces of debris as the hull gradually breaks up (NOAA, 1986).

Tourism -- Visitors to the reefs are often uninformed about the fragility of the coral and unknowingly do considerable damage by grabbing hold of the reefs in order to pull themselves along, knocking into the coral with flippers, standing on the reefs and breaking pieces off for souvenirs. Also, boats regularly go aground and cause anchor damage due to inexperience and lack of boater education.

Anchor Damage -- Coral reefs are often subjected to damage by ground tackle (anchors, chains and cables) from vessels. Anchor damage results in scars or drags across the reef. Greenpeace has been working with the National Marine Sanctuary staff as well as local community groups to install mooring buoys along the Florida reef tract to help prevent anchor damage.

Destructive Fishing Methods -- Corals are being poisoned and broken into pieces by destructive fishing methods. Chlorine bleach is sometimes poured into holes in reefs to drive out lobsters and fish so they can be more easily caught. The emplacement and recovery of lobster traps also can cause physical damage to coral, while hook-and-line fishing with monofilament line can snag and scar reef surfaces (NOAA, 1988).

Overfishing -- Fish and shellfish have declined around many coral reefs because of extensive large-scale fishing. The conch and lobster of a decade ago have all but disappeared.

Dredge and Fill -- Dredging and land-filling operations cause long-term water turbidity. In the Florida Keys, an analysis of coral revealed that it had nearly ceased growing during a period when dredge and fill operations were at their peak but regained normal growth after the dredging operations stopped (Voss, 1988).

Coral disease is an increasing phenomon along the Florida reef tract. Environmental stress often provides an opportunity for disease to take hold in a coral community. The following is list of three different diseases that severely damaged the region's coral reefs during 1987, 1988 and 1989.

Bleaching -- In 1987, a severe outbreak of bleaching disease struck reef-building corals throughout the entire Caribbean region, including the Florida reef tract. Sixty (60) species of stony and other corals were affected when the photosynthetic algae left the coral heads. The favored explanation for this coral bleaching epidemic was the unusually long period of high seawater temperatures in the region. This in turn gave rise to new concerns about the effects of global warming on tropical ecosystems (Sullivan, 1989).

White Band Disease -- Parts of the region, reported an increase in white band disease in 1988. White band disease girdles corals, primarially the branching varieties, and can kill them. Scientists do not know what causes it, how fast it spreads, how long it lasts or how it kills (Sullivan, 1988).

Black Band Disease -- A microfilament blue-green algae is causing black band disease in corals, and is becoming chronic on some patch reefs. Black band disease is particularly well known for its ability to rapidly erode coral cover, especially on the reef-building corals (Lapointe, 1989). Overnutrification by sewage and phosphates is causing the algae to proliferate (Tasker, 1989).

WRITTEN TESTIMONY TO THE OCEANOGRAPHY AND GREAT LAKES AND THE FISHERIES AND WILDLIFE CONSERVATION SUBCOMMITTEES OF THE HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES

H.R. 3719: THE FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1989

Submitted by:

Rodney M. Fujita, Ph.D

Mark S. Epstein, J.D.

Environmental Defense Fund
257 Park Avenue South
New York, New York 10010

(212)505-2100

The Environmental Defense Fund, a national non-profit environmental organization with over 150,000 members has, for many years, worked on a wide range of issues concerning the protection of marine ecosystems. At present, these ecosystems continue to be beset by a threats on local, regional and global scales. Coral reefs, the most biologically diverse marine ecosystem, are a case in point, suffering severe degradation during the last several decades. EDF is paying particular attention to the coral reefs of South Florida, our nation's most important reef tract. The ship groundings on the South Florida reefs this past November, highlighted the vulnerability of these important natural resources. It is important to note, however, that if legislation is to truly protect this national resource, other threats to Florida's reefs must also be addressed.

EDF staff scientist Dr. Rodney M. Fujita, holding a doctorate in marine ecology, has conducted research on the response of Florida's coral reefs to nutrient loading and is currently studying the sources of nutrients to the Florida reef tract, the impacts of land-based pollution on the reef tract, and ways to reduce threats to the health of coral reefs. In addition, Fujita, along with other EDF scientists are studying the impacts of global climate change on coral reefs, in particular, the stimulation of coral bleaching by increased water temperature and other stresses, and the impacts that widespread bleaching may have on the greenhouse effect. Dr. Fujita has also personally examined damage to coral reefs in the Key Largo National Marine Sanctuary due to freighter groundings.

Clearly, ship groundings pose a serious threat to coral reefs. The proposed legislation focuses on this threat. Damage from ship groundings, anchor damage, and physical disturbance from divers and snorkelers causes species composition to change and, in some cases, allows algae to dominate reefs. This kind

of damage is very deleterious on time scales of a few years to a decade or so. In the absence of other stresses, coral reefs can recover from physical damage. Indeed, Florida's coral reefs have been subjected to hurricanes every 6 years or so for the last 10,000 years up until 1965 (Wells 1988). Until recently, the reefs have been able to recover from natural and human induced physical disturbance. It is important to realize, however, that these recoveries occurred when water quality was higher than it is today.

Thus, in addition to physical disturbance, Florida's coral reefs face many stresses, in particular those coming from degraded water quality that may decrease their ability to recover from physical disturbance and which, if allowed to continue, may result in gross alterations or the complete demise of the reefs. These stresses range from those resulting from local land use and water management, such as siltation and nutrient loading, to stresses related to regional and global environmental problems.

First, let us consider the local and regional threats. South Florida is the site of extensive agriculture, with associated pesticide and nutrient loadings to ground and surface waters. Recently, pesticide residues have been discovered in coral tissues several miles offshore in the Florida reef tract (Skinner and Corcoran 1989) within the boundaries of John Pennekamp Coral Reef State Park. Although the source of these pesticides is not yet clear, it seems likely that they originated in agricultural areas to the north of the Keys. Insecticides applied on the Keys to render them habitable may also eventually accumulate in the reefs as well as in interconnected ecosystems such as seagrass meadows and mangrove swamps.

Urban centers in South Florida and dense development in the Keys are likely sources of the increased nutrient levels found in the waters supporting Florida's coral reefs (Wells 1988; Skinner and Corcoran 1989; Lapointe 1989). Millions of people live in coastal areas from Palm Beach to Miami. They discharge hundreds of millions of gallons of sewage and partially treated septage to marine waters. Much of this effluent travels south to the coral reef tract. Coral reefs in South Florida, like coral reefs around the world, thrive in low-nutrient waters. Experimental evidence indicates that elevated nutrient loading, especially of phosphorus, increases the productivity of algae that are normally kept in check by grazing fishes and invertebrates.

Excessive nutrient loading has led to extensive algal blooms in Bermuda and to the complete degradation of coral reefs in Kaneohe Bay, Hawaii. Disturbingly, in the last year, a patch of branching and soft corals was discovered near Grecian Rocks in the Key Largo National Marine Sanctuary that is severely overgrown with filamentous algae. Such lush algal growth does not occur on pristine reefs and is unusual in the Florida reef tract. We have enclosed, as Appendix A, a color photograph of the corals at Grecian Rocks which are overgrown with algae, as well as a color photograph of healthy corals. It is probably a result of increased nutrient loading.

No significant tertiary treatment of septage, which would remove inorganic nutrients, occurs in the Keys region. In addition, most septage in the Keys is treated with septic tanks. Many studies have shown that the combination of porous carbonate soils overlying porous fossil reef limestone, the limited ability of these soils to remove nutrients, high water tables, seasonally heavy rainfall, and the proximity of development to canals and embayments makes the Keys eminently unsuitable for

septic tanks and results in a large amount of nutrient loading to adjacent waters. In addition, current plans for a secondary sewage system for areas in the Keys appear to be inadequate. The construction of a centralized collection system and secondary treatment plant will increase the potential for development and accompanying deleterious environmental impacts unless measures to restrict capacity are implemented and strictly enforced. Furthermore, a secondary treatment facility would do little to reduce nutrient loading to adjacent waters surrounding Florida's coral reefs. More appropriate technologies and management strategies exist and should be fully explored.

In addition to excessive nutrient and toxin loadings, Florida's coral reefs have proven to be susceptible to changes in temperature. Increased temperature appears to cause corals to expell their photosynthetic symbiotic algae, decrease their photosynthetic pigment content, or both. This is termed "bleaching". Bleaching greatly reduces the coral's ability to secrete limestone skeletal material that is crucial for protection from predators, production of sediment, and growth of the reef framework. Three mass bleaching events in coral reefs around the world have occurred during this decade, the warmest decade of the century. Florida's reefs experienced intense bleaching in 1983, when water temperatures were unusually high. There are no indications as yet of mass bleaching events before 1979. If increased temperature does induce bleaching, bleaching events may become more frequent and more intense as global warming proceeds. Indeed, coral reefs may be the first ecosystems on earth to show the effects of global warming due to the greenhouse effect.

Additionally, siltation from poor land use, dredging, or offshore drilling also results in bleaching. In all likelihood, nutrient loading, siltation, toxin accumulation, physical disturbance, increased ultraviolet radiation resulting from ozone depletion, and increased temperatures interact synergistically, enhancing the likelihood of bleaching and perhaps of the coral and seagrass diseases that have had devastating impacts on coral reef and seagrass ecosystems throughout the Caribbean. Stresses imposed on Florida's reefs from global warming and ozone depletion are, to a large extent, beyond local control. These threats should provide further motivation to reduce local stresses so as to permit coral reefs to adapt to global changes already in the pipeline.

Clearly, Florida's coral reefs are threatened by more than ship groundings. While historically they have recovered from physical damage, the current degradation of water quality and other ecological disruptions could doom the reefs. Coral reefs do not appear to be capable of adapting to high nutrient loadings, disruption of food webs, or increased temperatures. Water quality has declined in the region under consideration for designation as the Florida Keys National Marine Sanctuary despite the designation of these waters as "Outstanding Florida Waters" and the establishment of the Key Largo and Looe Key Marine Sanctuaries, John Pennekamp State Park, Biscayne National Park, and the Fort Jefferson Dry Tortugas National Monument. Obviously, more comprehensive protection, specifically legislation, that includes not only protection from ship groundings, but that also provides for protection from land-based activities that impact water quality is needed.

It is also possible that atmospheric deposition of nitrate originating from nitrogen oxide emissions from cars, power plants, and incinerators could be adversely affecting water

quality in South Florida. EDF has shown this to be the case in the Chesapeake Bay (Fisher et al. 1988).

To be effective, the proposed Florida Keys National Marine Sanctuary legislation should provide for comprehensive management of water quality in addition to reducing physical disturbance. The legislation should require the Sanctuary manager to develop a comprehensive management plan that could include the following elements:

1) The development of special water quality criteria for waters containing coral reefs. Existing marine water quality criteria do not adequately protect coral reefs from excessive nutrient loading and other stresses. Water quality criteria are currently based on the level of pollutant loading or concentration that results in acute or chronic toxicity to organisms or some measure of ecosystem degradation. Actions to reduce pollutant loadings are triggered when these criteria are exceeded. Thus, ecosystems that are relatively pristine and/or do not exhibit signs of stress or degradation are allowed to become polluted to the point at which they do show these signs. We know that coral reefs are healthiest when nutrient levels are undetectable in the water column. We know that Florida's coral reefs are already stressed by excessive nutrient loading. We don't know how nutrients and other stresses interact to influence coral reefs. It is unlikely that the capacity of coral reefs to assimilate nutrients without changes in species composition and other detrimental effects can be determined before the reefs are irreversibly damaged. Therefore, it is important to adopt a policy of risk aversion and require that no more nutrients from human activities be allowed to accumulate in sediments, biomass, or the water column. Natural sources of nutrients from groundwater and surface waters, atmospheric deposition, advection from deep and offshore waters, and

nitrogen fixation and natural pool sizes of nutrients should be quantified using historical data and data from pristine coral reef systems in the Caribbean. This could serve as the baseline "criterion". Actions to reduce nutrient loadings would be triggered when these natural loadings and pool sizes are exceeded. This concept is explained more fully in the essay entitled "Protecting coral reef ecosystems from pollution: The minimum deviation concept" attached to this testimony;

2) An environmental monitoring program should be established in the Sanctuary to detect deviations from the pristine baseline described above and to determine the sources of nutrients, silt, and toxins so that these loadings can be eliminated. This may be facilitated by the establishment of a Geographical Information System for the Keys, South Florida, and the reef tract coupled with a hydrological model and a circulation model. Remote sensing and tracer studies may also be required;

3) The environmental monitoring program should include routine temperature, salinity, and ultraviolet radiation measurements to track the progress of global warming and ozone depletion. Studies on the interaction between temperature, salinity, UV, and other stresses on coral bleaching, as well as on other metabolic and ecological processes, should also be conducted. However, actions to decrease known stresses should not depend on the results of this research. I have attached an outline for an environmental monitoring and research plan to this testimony, as Appendix B;

4) Provisions are needed to enhance coordination between federal, state, and local authorities to ensure the protection of Florida's coral reefs and adjacent seagrass meadows and mangrove swamps. Because land use strongly influences water quality, this coordination must include land-based activities.

The need for increased coordination of agencies and for strong enforcement of regulations designed to protect Florida's reefs is obvious in light of the failure, in large measure, of previous attempts to protect these ecosystems from physical damage and water quality degradation;

5) Finally, adequate funding to support environmental monitoring, research, and implementation of management strategies should be authorized in the legislation under consideration.

We appreciate the work the Subcommittees are doing to address the need to protect South Florida's coral reefs and hope that our comments are helpful in your efforts to protect this reef tract. These reefs are an invaluable national resource and support one of the most biologically diverse and beautiful ecosystems on earth. Moreover, protection of these reefs is clearly important for the economic vitaltity of the region. Comprehensive legislation and rigorous enforcement of regulations that take into account all threats to coral reefs, seagrass meadows, and mangrove swamps, which form an integrated, interdependent ecological complex, are needed to ensure their continued existence and viability.

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APPENDIX B

AN ENVIRONMENTAL MONITORING AND RESEARCH PLAN FOR CORAL REEFS

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Coral reef ecosystems, including the reefs of south Florida, the United State's most important reef tract, are threatened by human activities at local, regional, and global scales. Environmental monitoring and research programs should be designed to detect signs of environmental stress at all of these scales in advance of widespread mortality or deterioration. Furthermore, such programs should seek to assign causes to adverse effects and trigger ameliorative action. The following is an outline of an environmental research and monitoring program for coral reefs.

1. Land use and atmospheric deposition impacts: eutrophication, siltation, and toxins

A. Establish a baseline for atmospheric, surface water, and groundwater loadings of nutrients, silt, and toxins for reefs thought to be relatively pristine. Alternatively, develop budgets for these constituents and separate natural and anthropogenic loadings. Water column concentrations of nutrients, silt, toxins, and chlorophyll should also be measured. Initially, all of these parameters should be measured as frequently and in as many locations as possible in order to quantify natural variability which may be important in structuring the coral reef ecosystem. Later, when temporal and spatial variability has been characterized, a less intensive sampling regime can be designed.

B. Experimentally determine whether plants and algae are nutrient-limited or not with the use of short and long term nutrient enrichment studies in which water turnover rates are ecologically realistic. These studies will indicate which nutrient should be of special concern.

C. Measure growth rate, silt content, and toxins in coral cores in order to determine correlations between these parameters and detect loadings that may be missed in the sampling regime.

D. Monitor nutrient, silt and toxin loading from the atmosphere, surface waters, and groundwater, and compare to pristine conditions. Map the reefs and these sources of nutrients, toxins, and silt on a Geographical Information System coupled to a hydrological model to determine sources of unusually high loadings, and use this to trigger efforts to reduce loadings.

E. Monitor carbon (C), nitrogen (N), and phosphorus (P) content of marine plants and algae and compare to levels in plants and algae from pristine environments at least once each season. Low C:N or C:P ratios should trigger reductions in N and P loadings, respectively.

F. Determine N and P content of marine plants, algae, animals, and sediments in pristine environments at least 4 times per year (once in each season). Calculate the total pools of these elements in each ecosystem component. Accumulation of N or P above seasonal variations will indicate excessive nutrient loading and should trigger action to reduce nutrient loading. These nutrients would not be expected to accumulate in the water column due to the extremely high affinity of coral reef sediments, coral/algal symbioses, and algae for nutrients. Nitrogen and P could be released from any pool and result in eutrophication.

G. Conduct experiments to determine how nutrient loading and grazing intensity interact to control the abundance and productivity of marine plants and algae. For example, excessive algal abundance in an area with low nutrient loading may be due to a decline in herbivore abundance. This finding should trigger actions such as restoring habitat, decreasing fishing or other exploitative pressure, reducing non-native competitors, or re-introducing native species.

2. Pathogen monitoring

Fecal coliform, roundworm eggs, and other indicators of human pathogens should be monitored routinely and be used to trigger improvements in sewage treatment if standards are exceeded.

3. Global environmental indicators and stresses

A. Water temperature in a variety of habitats (including a range of water circulation characteristics), current velocities and directions, salinity, tides, dissolved oxygen, air temperature, rainfall amount and content, wind velocity and direction, and solar radiation (UV and visible) should be measured to provide indicators of global warming and ozone depletion.

B. Photographic transects should be established to record changes in species composition and pigmentation. Changes in pigmentation could be used to monitor bleaching.

C. Remote sensing techniques should be developed to allow coverage of large areas. These techniques should focus on water temperature and pigmentation changes. Widespread bleaching may be an early indicator of global warming, since regional and global bleaching events appear to be triggered by increased water temperature.

D. Photosynthetic capacity, respiration rates, and growth rates should be monitored. Vertical accretion rates should be compared with historical rates, rates in pristine areas, and the rate of sea level rise to determine whether reefs are in danger of become light-limited, abraded, or altered in other ways as a result of global warming-enhanced sea level rise. Measurements of photosynthetic capacity and respiration rates will be useful in determining the potential for bleached reefs to emit carbon dioxide, which would enhance the greenhouse effect.

E. Research should be conducted on the mechanisms that cause bleaching. The isolated and synergistic effects of temperature changes, siltation, and changes in light intensity and/or quality should be investigated.

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The Nature Conservancy

HR 3719: FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT

TESTIMONY OF MARK L. ROBERTSON, THE NATURE CONSERVANCY

May 10, 1989

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INTRODUCTION

The following written testimony is submitted by Mark L. Robertson on behalf of The Nature Conservancy. The Nature Conservancy is a non-profit, international membership organization committed to the global preservation of natural diversity. Its mission is to find, protect, and maintain the best examples of communities, ecosystems and endangered species in the natural world. Mr. Robertson is Director of the Florida Keys Protection Project of The Nature Conservancy and is a resident and landowner on Sugarloaf Key in Monroe County, Florida. He holds degrees in Biology and Environmental Sciences, specializing in Marine Biology. He has worked in the field of environmental science and biology in the Florida Keys for more than 10 years.

The Nature Conservancy is committed to conservation of the biological diversity and productivity of the coral reefs and marine ecosystem of the Florida Keys. The Nature Conservancy endorses designation of the waters of the Florida Keys as a National Marine Sanctuary, as a framework for long-term management and protection of this nationally significant resource.

We thank the subcommittees for the opportunity to submit testimony on this important legislation. The staff of The Nature Conservancy is available to answer questions or provide further information at any time.

On behalf of The Nature Conservancy , we would also like take this opportunity to congratulate and thank Representative Fascell for introducing this important and much-needed legislation. Mr. Fascell's commitment to conservation has been translated into tangible results. His numerous accomplishments in this field include the establishment of the National Key Deer Refuge, the establishment of Biscayne National Park, and expansion of Everglades National Park to include the East Everglades. His interest and concern for the protection of the coral reefs is evident in this proposed legislation, which is at the forefront of conservation.

ECOLOGICAL VALUES OF THE FLORIDA KEYS MARINE ECOSYSTEM♦

Stretching for 220 miles from the southern tip of the Florida peninsula lies the only tropical marine ecosystem in the continental United States. Included in the unique Florida Keys marine system are extensive coral reefs, seagrass beds, mangrove forests, coastal waters, and the myriad plant and animal species which live within these habitats. Because of their ecological

diversity, the Keys represent the most significant marine ecosystem in the mainland United States.

This ecosystem is enormous. It encompasses well over 1,100 square miles on the oceanside, extending from Soldier Key just south of Key Biscayne to the Dry Tortugas, with typically from 3 to 5 miles of shallow waters between the reef and the Keys shoreline. Another 2,000 square miles of varied aquatic habitat extends north of the Keys into the Gulf of Mexico and Florida Bay, including three National Wildlife Refuges and portions of Everglades National Park.

A distinguishing feature of the ecosystem is its expanse of shallow waters. The shallow depth (mostly less than 30 feet, with the reefs extending to a maximum depth of 140 feet) greatly enhances the productivity and biological diversity of the waters, because of the sunlight which fosters aquatic plant and coral growth.

A. The Coral Reef System

Next to a tropical rain forest, a coral reef ecosystem contains a greater diversity of species than any other ecosystem on earth. The Florida reef is the only coral reef system in the continental United States, the largest reef system within the legal jurisdiction of the United States, and the third largest reef system in the world.

Two different types of living coral comprise the reef system. "Patch reefs" lie in shallow nearshore waters, often associated with seagrass beds and sand banks. "Bank reefs", which include the more dramatic coral formations, exist as areas of massive coral growth further seaward, right at the edge of the drop-off of the continental shelf into the deep waters of the Atlantic.

The Florida reef system contains 63 species and subspecies of stony corals as well as 42 species of soft corals. Over 400 different fish have been identified within the system, including schooling fish, such as parrotfish, and larger predators such as barracuda. Thousands of other species of sea plants and invertebrate animals are included in the diverse coral reef ecosystem.

B. The Coastal Waters

The waters off the Florida Keys support an incredibly rich fisheries resource. The key to a productive nearshore coastal marine system is the extent and health of its nursery grounds and food source. In the Keys, the mangrove-fringed shoreline and extensive seagrass beds provide the breeding and nursery ground

for the fisheries. The enormous extent of seagrasses and mangroves is the underpinning of the entire system's productivity: at least 2,000 square miles of seagrasses and 800 square miles of mangroves.

An estimated 75% of the Keys commercial and sport fish species are spawned in these shallow water plant communities. Half of the stone crabs, and nearly all of the spiny lobster in the United States are harvested in the shallow waters of the Keys.

ECONOMIC VALUES OF THE FLORIDA KEYS MARINE ECOSYSTEM

The Florida Keys marine ecosystem represents a multi-million dollar economic resource. Its primary economic values are:

1) Tourism. Over one million divers visit the Florida Keys each year to view the coral reefs. These divers and other visitors generate tens of millions of dollars for the local economy.

2) Commercial fishing. The number two industry in the Keys, commercial fishing depends upon a healthy marine environment. The commercial fishing cash crop has been valued at over a quarter million dollars per day.

3) Sportfishing. The Keys are world-famous for their angling opportunities, including tarpon and bonefish. Charter fishing also generates millions of dollars for the local economy each year, and is dependent upon a productive marine system.

As long as the ecological health of the system is maintained, the coastal waters can serve as a sustained source of human use and economic benefit. Conversely, if the quality of the waters or the habitat is significantly degraded, they will no longer offer value for man's use, enjoyment, and economic livelihood.

THREATS TO THE MARINE ECOSYSTEM

The threats to the ecological values fall broadly into two categories:

1) Direct, on-site impacts -- primarily to the seagrass meadows and the coral reefs.

2) Indirect, off-site impacts -- mostly affecting water quality, which in turn affects <u>all</u> of the aquatic resources.

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A. Current Condition of the Ecosystem

In June 1988, the National Oceanic and Atmospheric Administration (NOAA) sponsored a Florida Keys coral reef workshop, gathering over 50 experts on coral reefs (Miller, ed., 1988). The workshop report concluded that the Florida reef is in "serious trouble."

Scientists have concluded that some of the reef's decline can be attributed to natural threats such as cold water, hurricanes, disease, and the coral bleaching that extended throughout the Caribbean region. However, the Florida reef has always recovered and regenerated from these damages.

Now, however, there is increasing evidence which indicates that excessive nutrients from land run-off and near-shore discharges may be the principal cause of the reef's decline. The NOAA report concluded that "the excessive amount of nutrients invading the Florida reef tract from the Keys and from Florida Bay is the most serious and widespread problem."

Other well-known adverse impacts on the reef are attributable to improper boating and diving practices, which have grown with the increased popularity of the Keys.

B. Direct, On-Site Threats

The areas of living coral represent a tiny fraction of what is otherwise a large marine ecosystem, but these receive the greatest pressure from human users because of their outstanding natural beauty and resources. The living reefs withstand over one million scuba divers, snorkelers, boaters, and fishermen each year.

The most serious on-site threats include:

1) Anchor damage. Diving and fishing boats visiting the reef may drop their anchors on living coral, thus breaking and killing part of the coral. Mooring buoys have been installed at certain reefs to help alleviate this impact.

2) Boat groundings. Vessels of all sizes, from small outboards to ocean-going freighters, regularly run into the shallow reefs, causing significant destruction. Three major ship groundings in the latter part of 1989 caused structural damage to living coral. In Key Largo National Marine Sanctuary alone, dozens of vessel groundings are reported each year. Rental

boats seem to account for an unusually high number of groundings. Rescue efforts often compound the damage.

3) Diver damage. Inexperienced or careless divers often grab onto, touch, break off, or stand on living corals. This contact may harm the corals, and is reported as a serious problem by reef managers, researchers, and divers.

4) Overharvesting of fish. Commercial and sport fishing may result in the overharvesting of certain species. This activity could seriously impact the ecological balance of the reefs by selectively removing certain organisms which help maintain the overall balance of the system. For example, many fish graze the seaweed which compete with living corals for space, and overharvest of the fish may allow the seaweeds to overgrow the corals.

Similarly, a serious on-site threat for shallow water seagrass beds is "prop dredging" by boats attempting to travel in water too shallow for them. As the number of commercial and recreational boats continually increases, this has become a serious problem. Seagrasses can take more than ten years to recolonize prop-dredged areas. In addition, the resuspended sediments can smother adjacent seagrass meadows and reduce water clarity. Finally, the prop scars become sites of erosion in storms and tides, spreading the damage even further into the grass meadows. Many thousands of acres of seagrasses in the Florida Keys have been impacted in this way.

C. Indirect, Off-Site Threats

The current consensus of scientific opinion is that water pollution is the single most serious threat to the long-term health of the living coral reefs and the entire marine ecosystem, as described in the 1988 NOAA workshop.

Activities on land can seriously affect the nearby mangroves and seagrass beds, as well as the living reefs many miles away. The quality of the offshore water is critically impacted by land use. Degraded water quality results in decline and destruction of the marine resources.

Several elements play a role in determining water quality: salinity, temperature, turbidity, toxic pollutants, and nutrient levels. For the Keys, nature mainly governs salinity and temperature. However, the last three of these factors can be affected by human on-shore activity. The adverse impacts of each are discussed below:

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1) Turbidity. The turbidity of water is a measure of its clarity in terms of suspended particles. The health of the seagrass beds and other aquatic plants depends largely on the penetration of light (which permits photosynthesis). The shallow waters of the Keys provide a natural setting for light penetration. However, shallow waters are also more susceptible to clouding. Clouding occurs from dredging, boat traffic, and sedimentation run-off from on-shore development.

2) Toxic pollutants. Pesticides, herbicides, and other toxic substances enter the waters of the Keys from a variety of sources: agrichemical run-off from the South Florida mainland; mosquito control in the Keys; and anti-fouling paints used on boats. Pesticides have been detected in the water three miles offshore.

3) Nutrients. Scientists have documented that coral reef communities in many parts of the world are becoming endangered by nutrients - nitrogen and phosphorous. In South Florida, municipal sewage outfalls, septic tanks, and urban runoff add nutrients to the local waters either through direct outfalls or through seepage into groundwater, which easily moves through the porous bedrock to mix with surface waters.

Excessive nutrients stimulate the growth of microscopic algae called plankton in the water, which in turn reduce the water transparency. Corals and seagrasses need light to grow and survive. Reduced water transparency limits and retards coral growth. Excess nutrient concentrations in the water also alters the ecological balance between algae and coral, allowing algae to grow over corals and thus destroy the reef-building organisms.

There is increasing evidence that serious water quality problems already exist in the Florida Keys. Scientists at John Pennekamp Coral Reef State Park have found high levels of toxic metals and organic pesticides in bottom-dwelling organisms and sediments. A recent survey of water quality by Dr. Brian Lapointe found widespread evidence of nutrient pollution in nearshore waters.

D. Summary of Threats

Of all the threats to the reef, the most serious, insidious, and pressing is the degradation of water quality, primarily by nutrients. On-site threats can be monitored and enforced, assuming sufficient funding and manpower. Corals can eventually recover from physical damage (though this process takes hundreds of years). But there may be no recovery or growth if water quality is sufficiently degraded. Failure to act promptly to reduce water pollution may result in the permanent loss of the coral reefs and much of the seagrass community.

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FLORIDA KEYS MARINE SANCTUARY ACT: RECOMMENDATIONS

Designation of the coral reefs and marine ecosystem of the Florida Keys as a National Marine Sanctuary will provide a much-needed framework for protection and long-term perpetuation of this nationally significant resource. It will also provide a framework within which the threats to the resources can be better understood and addressed. It will also provide a framework for perpetuating wise use of the resources, and managing the diverse, ever-increasing number of users.

The two existing National Marine Sanctuaries (Key Largo and Looe Key) have an outstanding record in management of the "on-site" threats to the coral reefs. Their programs include mooring buoys to reduce anchor damage, diver education, law enforcement, restriction of incompatible uses such as collecting, and vigorous enforcement following ship groundings.

In addition, the existing Sanctuaries have stimulated critical scientific research to better understand the resources and threats such as water quality, despite a research budget that has been woefully inadequate. This is one area where new legislation could improve upon the existing situation.

New legislation can be a significant improvement by drawing upon what has been learned from the experiences of the two existing Sanctuaries in the Florida Keys. Lessons can also be learned from special designations of other coral reef ecosystems, such as the Great Barrier Reef in Australia and reefs in Caribbean countries.

The Nature Conservancy supports designation of the waters of the Florida Keys as a National Marine Sanctuary. Mr. Fascells' bill (HR 3719) would be a significant achievement if adopted as currently written, and we thank Mr. Fascell for introducing it. Furthermore, in order to ensure that the complex threats to this nationally-significant resource are adequately addressed, we would like to recommend the following additions to the proposed legislation:

(1) Boundaries. The boundaries of the Sanctuary must recognize that the coral reefs are part of a larger marine ecosystem, all parts of which are interdependent. In particular, the shallow-water seagrass beds, algal flats and mangrove forests are critical to the overall productivity of the ecosystem. Therefore, we recommend that the boundaries be drawn to include the waters around the Florida Keys and

extending to the Gulf of Mexico side of the Keys to a sufficient distance to protect the seagrasses. Seaward of the reefs, the Sanctuary boundaries should extend to at least the 600 foot depth contour. Maps with specific boundary recommendations will be submitted to the committee.

(2) Comprehensive Management Plan. The key to the long-term success of the Sanctuary will be a Management Plan which is comprehensive, holistic, and designed to assure the long-term perpetuation of the resources and their wise use. While the proposed legislation should not pre-judge the management plan, it should identify the critical factors that must be addressed, based on the nature of the resource, its uses, and the threats. The plan must be developed with extensive public input, and be subject to Congressional review. The legislation should mandate that the Management Plan include the following:

(a) Water Quality: Strategies to identify, prevent and mitigate existing or future sources of point and non-point water pollution should be developed.
(b) Incompatible Uses: The Plan must identify those uses which are incompatible with long-term perpetuation of the Sanctuary's resources, and prohibit them.
(c) Management of Compatible Uses: Uses of the Sanctuary which are compatible with long-term health of the resources should be identified and encouraged. Management of these uses should include consideration of temporal or spatial "zoning", as used in the Great Barrier Reef management plan, to ensure perpetuation of the Sanctuary's resources.
(d) Threats: Threats to the Sanctuary's resources, originating both with and outside the boundaries, should be identified; strategies to address or mitigate these threats should be developed.
(e) Interagency Coordination: There are currently twenty state or Federal managed areas in the vicinity of the Florida Keys. Coordination of the actions and plans of these agencies is critical. Strategies must be developed to ensure coordination between Sanctuary managers and other state and Federal agencies which manage lands and waters in the vicinity of the Sanctuary.
(f) Scientific Research and Monitoring: Scientific data must be the foundation of resource management decisions. Currently, there is not sufficient information for resource managers. The Management Plan must identify research needs and develop a long-term ecological monitoring program.

(3) Funding. Without adequate funding, the Sanctuary will simply be unable to carry out its function - it will just be a "paper park". Funding mechanisms can be part of the Management Plan. In addition, the Sanctuary managers should consider using their existing authority to require licenses of commercial operators within the Sanctuary, as well as other fees from users who stand to benefit from management and protection of the resources. Any funds derived from these sources should be set aside solely for use in the Florida Keys National Marine Sanctuary.
The legislation should also specify that any civil penalties or damages collected for incidents within the Sanctuary should be set aside solely for use in the Florida Keys National Marine Sanctuary.

(4) Prohibition on Mineral and Hydrocarbon Exploitation. Within the boundary of the Sanctuary there should be a prohibition on exploration or development of minerals or hydrocarbons. The renewable, living resources of this ecosystem are simply too valuable, both ecologically and economically, to be jeopardized by these activities.

(5) Commercial Vessel Traffic. Appropriate regulations should be placed on commercial vessel traffic within the Sanctuary, in order to minimize disastrous vessel groundings, while still accommodating reasonable access. The legislation should specify that no vessels, commercial or recreational, may be operated within the Sanctuary in a manner that adversely impacts the resources of the Sanctuary.

(6) Federal Coordination and Review. A number of Federal agencies have programs which affect the marine ecosystem of the Florida Keys. The proposed legislation should include a provision requiring these agencies to consult with the Sanctuary managers on the impacts of their decisions.

In closing, we would like to repeat our support for Mr. Fascell's initiative (HR 3719). We appreciate the opportunity to submit testimony to the subcommittee, and staff of The Nature Conservancy is available to provide further information as required.

Written Testimony on H.R. 3719
A Bill to Establish the Florida Keys National Marine Sanctuary

Submitted by Clay E. Porch
(for myself and the Florida Marine Life Association)

Thank you for allowing me this opportunity to express my views on the proposed Florida Keys Marine Sanctuary. I hold a Master's degree in fishery stock assessment and management and am presently a Ph.D. candidate at the University of Miami (Florida). I am also a licensed commercial fisherman and the co-chair of the Florida Marine Life Association (a coalition of fishermen specializing in the live-capture and sale of aquarium fish and invertebrates). Speaking as a scientist, I am concerned with the future ramifications of the proposed sanctuary on who does what kind of research. As a fisherman, and a fisheries biologist, I am even more concerned with how the resources will be managed. In what follows I will briefly discuss what I perceive to be important shortcomings of the proposed sanctuary. It will become apparent that I am not directly condemning the idea of a multiple-use sanctuary, however the precedents set by the current sanctuaries are, to me, very discouraging.

(1) *Research Opportunities*. Current regulations for the Looe Key National Marine Sanctuary place a great deal of responsibility with the sanctuary manager, including the ability to advise the sanctuary programs division as to which research projects should be permitted. As far as I can ascertain, there is no formal mechanism for appealing a negative recommendation by the sanctuary manager (who may or may not be qualified to judge the merit of any given research project or even to select an appropriate panel or reviewers). If the proposed sanctuary were to follow this precedent it is possible that reasonable projects could be denied permits, which means the investigators could not conduct their work anywhere seaward of the Florida Keys! Some form of appeals board that is independent of the sanctuary program would seem highly desirable. Another difficulty involves timing- to secure funding from sources outside the sanctuary program, an investigator will

likely have to prove he or she can secure permission to conduct the research first. This means he or she would need the sanctuary program to approve the project before the deadline for applications specified by the source he is seeking the grant from, but well in advance of the time the actual research will be carried out. In the past, investigators could often avoid the red tape by working outside the sanctuaries.

(2) *Management*. Primarily I am concerned here with the regulation of the aquarium fish and invertebrate industry, which, according to industry estimates, is worth between ten and fifteen million dollars to the commercial fishermen alone (not including associated supply industries and the recreational component). While this sum is certainly negligible compared to the GNP, it does reveal that several hundred individuals rely heavily on this fishery. Furthermore, this fishery allows the general U.S. populace, most of whom will never get to see our beautiful reefs, a chance to see some of our fascinating marine life first hand and perhaps even to take a little bit home with them. The educational benefits alone are worth considering, and many marine scientists (myself included) were first inspired by their enjoyment of the aquarium hobby.

In his 1976 review of the aquarium hobby (pp.'s 83-86 in the Proceedings of the Gulf and Caribbean Fisheries Institute), the eminent marine biologist Dr. C. Richard Robins wrote "Regulation is required only where there are direct conflicts between this fishery and other recreational uses such as nature trails and underwater photography. Except for such areas, there is no *a priori* basis for excluding this fishery from state and national parks and monuments or reserves." Currently over 538 square miles of the Florida Keys reef tract is closed to this fishery, which is more than half of the total area of the proposed sanctuary. The great bulk of the non-consumptive users visit only a handful of the more spectacular reefs within these parks and sanctuaries, yet the entire area was closed to harvest. None of the management drafts for any of the five major parks and sanctuaries in the region give a sound argument for eliminating the harvest from such a broad area. In fact, the U.S. Dept. of Commerce draft environmental impact statement for the Looe Key National Marine Sanctuary (published in

1980) gave as the preferred alternative "Restrict tropical specimen collecting to collectors with NOAA permits..." Still, the final rule, adopted in 1981, prohibited all commercial and recreational collection. Fortunately, at the time, the interests supporting commercial and recreational food fisheries had enough influence to avoid the same fate.

To summarize, I am very concerned that fishermen, and aquarium fishermen in particular, are becoming the proverbial whipping boy of the poorly informed. Habitat degradation, and not exploitation of the resources residing within the habitat, is the most serious problem facing our reefs in the Florida Keys. While the stated goals of the sanctuary program are admirable, the reality is that a sanctuary can do little but pay lip service to the insidious threats of pollution and nutrient enrichment that plague the reefs. That is an upland problem. What it can do is reduce ship groundings by diverting traffic further offshore; however, mechanisms already exist to divert shipping lanes and so, in this sense, a sanctuary might be superfluous. Moreover, it is already against the law to anchor or otherwise damage corals: Is designating an area as a sanctuary the only way sufficient funds can be obtained to enforce the law?

Finally, all that I have written relates to the specific regulations by which the proposed sanctuary will be managed, which is not a direct condemnation of the bills before you nor of the idea of a sanctuary. It can be argued, and often is, that the new management plan can be adjusted to accommodate these concerns. However, given the precedents set by the Looe Key and Key Largo National Sanctuaries, what is our assurance that it will be so? The bills submitted by Senator Graham and Congressman Fascell do not guarantee it.

Thank you for taking my testimony.

Sincerely,

Clay E. Porch

Clay E. Porch

Russell D. Kaplan, Esquire
110 Lake Emerald Drive, Apt. 110
Oakland Park, Florida 33309

May 17, 1990

The Honorable Dennis M. Hertel
Oceanography and Great Lakes
Subcommittee
c/o Mr. William Ashworth
House Annex II, Room 532
Washington, D.C. 20512

Re: Preliminary Hearing on Congressman Dante Fascell's Proposed Bill to Establish the Florida Keys National Marine Sanctuary (HR3119)

Dear Chairman:

I am writing on behalf of the Florida Marine Aquarium Society (the "Society"). Mr. Ashworth of your office advised me that the committee could not extend, to my organization, an invitation to attend and testify at the preliminary hearing held May 10, 1990 at 2:00 p.m., regarding Congressman Dante Fascell's proposed bill to establish the Florida Keys National Marine Sanctuary (HR3119). Mr. Ashworth did ask and suggest that we submit our comments in writing to the Committee. The Society wholehearted supports the bill's main purpose, to prohibit vessels from damaging the fragile coral reefs of the Florida Keys. The Society is concerned, however, that one of the bills ancillary purposes, the establishment of a marine sanctuary throughout the Florida Keys, would prohibit its club members from collecting fish and other organisms for their home aquaria. The Society's concerns and suggestions were well presented by its President and immediate Past President in their letter to Congressman Fascell dated March 8, 1990, a copy of which is enclosed.

We appreciate the opportunity to respond to any questions from your office concerning the proposed marine sanctuary areas.

Sincerely,

Russell D. Kaplan, on behalf of
the Florida Marine Aquarium Society

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a:miscdocs.44
Enc.

Florida Marine Aquarium Society
MUSEUM OF SCIENCE ● 3280 SOUTH MIAMI AVENUE ● MIAMI, FL 33129

March 8, 1990

Honorable Congressman Dante Fascell
2354 Rayburn House Office Building
Washington, D.C. 20515

Re: Creation of the Florida Keys National Marine Sanctuary

Dear Congressman Fascell:

This letter is written in response to requests from your office for comments concerning your proposed bill H.R. 3719. That proposal seeks to create a federal sanctuary out of the Florida Keys reef tract area.

The Florida Marine Aquarium Society ("Society") is a not-for-profit Florida corporation and an affiliate of the Museum of Science in Miami, Florida. The Society was formed in 1955 and since that time has worked to educate its members and the general public in the maintenance of saltwater aquariums and the collection of marine fish and other organisms. Each year, the Society hosts a saltwater aquarium show at the Museum of Science to educate and entertain the general public. The show is a fund-raiser for both the Museum and the Society. Last year, over 6,000 people attended the show.

The main purpose of the proposed legislation, to prohibit vessels from damaging the fragile coral reefs of the Florida Keys, is an excellent purpose and we support your goals in that nature. The damage to the fragile coral reefs caused by ship groundings is a terrible loss to the marine environment and to the people that seek to enjoy the beauty of the reef system.

We have one concern that we would like focus on in this letter. For years, our members and other members of the general public have enjoyed the ability to collect their own fish and other organisms for home aquaria throughout the Florida Keys. Currently, such collecting is prohibited in Pennenkamp Park, the Key Largo National Marine Sanctuary, the Looe Key Marine

Sanctuary, and around the Dry Tortugas. Our members are concerned that if a national sanctuary is imposed upon the entire Florida Keys reef tract, then collecting of small fish and other organisms for home aquaria will be prohibited as it currently is in those other areas.

Your proposed legislation does not address the issue of the uses that will be permitted in the new marine sanctuary area. In speaking with your office and with others knowledgeable of the proposed legislation, it appears that a final set of regulations concerning consumptive and non-consumptive uses within this proposed sanctuary has not been finally determined. Perhaps there will be no regulation of recreational activities with the new sanctuary. If there is, however, we hope that you will consider creating areas within the new sanctuary that will permit the recreational collection of fish and other organisms for home marine aquariums. Creating such a system might involve the recognition of "zones" along the reef tract area. The various zones would include areas where collecting fish and other organisms, hook and line fishing, lobstering, spear fishing, etc., might be permitted and other zones where it would not be permitted. We understand that the Great Barrier Reef off of Australia is managed along this type of theory. Creating these "zones" should not affect your goal of establishing limits in which large vessels could not pass but would permit the historic use of the reef and non-reef areas by various recreational interests including those of us who collect fish and other organisms for our home aquariums.

Perhaps the fisheries management within the new sanctuary could come under the jurisdiction of the South Atlantic or Gulf Coast Fishery Management Council (federal waters) and the Florida Marine Fisheries Commission (state waters). These agencies could be charged with the tasks of identifying the various zones and establishing the appropriate regulations within those various zones.

Alternatively, if restrictions are placed on collecting, please consider establishing a permit process. Such a process would create a system whereby recreational collectors could obtain a permit to collect in the sanctuary. This could have the benefit of providing a source of information about use and demand on the resources for management purposes.

We would enjoy the opportunity to discuss these with you further and answer any additional questions you or your office may have about persons that collect marine fish and other organisms for their own recreational use. We appreciate the

opportunity to respond to questions from your office concerning the proposed marine sanctuary areas.

Very truly yours,

By: Robert A. Gould
Robert Gould, President

By: Richard M. Bezold
Richard M. Bezold, Immediate Past President

rmb3314s

PRIDE
P.O. Box 1692
Islamorada, Florida 33036
Preservation of Our Right As Individuals To Discovery And Exploration

May 21, 1990

Mr. Bill Ashworth
Subcommittee on Oceanography and Great Lakes
House Annex II
Room 532
Washington, D. C. 20515-6230

Dear Mr. Ashworth:

It was a pleasure meeting with you following my testimony before the Subcommittee on May 10.

Upon my return to the Florida Keys, I have come across the enclosed article which lends additional support to my testimony that Marine Sanctuary programs cannot solve the problem of the dying reefs. Could you please enter this article as an attachment to support my testimony and distribute it to the appropriate Subcommittee members?

Should you or the Committee require any additional information, please do not hesitate to contact me.

Best regards,

Pat Yananton
Microbiologist
Environmental Committee
PRIDE Board of Directors

PY/s
Enclosure

Algae Attack Florida Keys Reef System

By Betsy Gombert

Groundings are not the only threat to the reef system in the Florida Keys. Currently parts of the reef are being threatened by harmful algae that biologists believe is feeding on pollution and smothering the reef.

According to John Halas, sanctuary biologist for Key Largo Marine Sanctuary, there is an area affected just outside the sanctuary. A section of elongated reef near the inshore boundary of the sanctuary and about three and a half to four miles from shore has algae blooms. The algae was first noticed around the middle of August last year.

"The algae is affecting the soft coral, the gorgonians and sea fans," says Halas, and has attached itself to the colonies and enveloped them. Subsequent visitations show that the algae shuts off the light and puts a blanket over them, but it hasn't affected the hard coral."

Brian E. Lapointe, director of marine conservation at the Marathon-based Florida Keys Land and Sea Trust, and also a scientist at the Harbor Branch Oceanographic Institution, has been studying the algae and taking samples of the water.

According to Lapointe, he has just completed an independent comprehensive water quality survey, funded by a grant by the John D. and Catherine T. MacArthur Foundation. Conducted in August and September of last year, the survey employed 15 different sites in the middle and lower Florida Keys. Lapointe estimates that the near-shore sites are subject to a number of impacts from septic tanks to sewage entering the marine environment.

"The bottom line was that we found that all the near-shore sites around developed residential homes, as well as the Florida Bays area, showed very significant nutrient enrichment — elevated concentrations of nitrogen and phosphorus," says Lapointe. "The sites that were enriched also showed lower dissolved oxygen in the water."

Lapointe says that essentially the algae is one result of what he calls cultural eutrophication, or an increased nutrient loading to waters that results in a series of symptomatic changes in a body of water. Other changes include a trend towards increased turbidity in the water, or water that is less clear, decreased dissolved oxygen, noxious odors, and an overall increase in biological diversities of these waters.

"That last point is particularly germane to the waters in the Florida Keys because the organisms, the tremendous biotic diversity of our waters — particularly the bank reefs — is due to evolution of these corals," says Lapointe.

The reefs are adapted to low nutrient conditions, according to Lapointe. He says the sewage runoff and septic tanks and treatment plants, combined with other sources of nutrients such as fertilizers, seep into the groundwater. From there they travel into the near-shore environments, increasing the nutrient loading to these waters. Lapointe hypothesizes that the process has been accelerated by a large groundwater discharge that occurred during a heavy rainfall last August, days before the algae was noticed growing over those corals.

The reason the algae are beginning to proliferate is that as these nutrients build up, the algae are like weeds — they grow very fast but they need nutrients," says Lapointe. "As the nutrients come out in the water from groundwater seepage or whatever, we're going to see more and more frequent blooms of this nature where the fast growing algae can literally grow over and smother the corals which grow very slowly."

Lapointe says action is needed now. He suggests better waste water treatment, a review of agricultural practices and the development of what he calls BMPs, or best management practices, that will deal with the non-point source pollution emanating from South Florida agricultural areas as well as other land uses. These are long-term solutions, but Lapointe doesn't think anything can happen faster than that.

"These waters have not become polluted overnight, we're talking decades — the last two decades — and the water quality has only really begun to be degraded recently, in the last five to 10 years," says Lapointe.

He believes it's not going to disappear overnight either because the pollutants are in the groundwater, which moves very slowly.

"However, remedial action should begin now, because we are at a point that we can arrest and decrease the nutrient loading to our nearshore waters," says Lapointe. "Then I think over time — we're talking five to 10 years — if we start arresting it now, we will see positive effects as the waters cleanse themselves."

Another problem is that the groundwater impacting this reef could be coming from an area two or three miles away. Lapointe says sewage can migrate and, being less dense, it has a tendency to rise as it migrates so it could move a mile, two or three miles laterally before it comes up to the surface. So it is more difficult to determine the source.

Lapointe is now trying to get money from the National Marine Sanctuary Program (NMSP) to do more extensive tests to determine the source. Two main test projects are planned. First, permanent transects (or study sites along a line) are put out across the reef to follow the time course of the algae to describe what happened.

The second test would be to put down some enclosures over the bottom to compare an affected reef with another reef site without the algae. This is to try to detect elevated nutrients coming into the environment through the sediments and would test the hypothesis about nutrient enrichment from groundwater.

"I would like to point out that I feel that the sanctuary program has been very slow to react to my request for funding on this, this is a very serious problem," he says.

John Halas is quick to agree that the algae problem is very serious, but points out that the increase in boat groundings and ship groundings, and the Congressional mandate requiring a study of the boundaries are also important. Both Halas and Ralph Lopez, regional manager for the Gulf and Caribbean region, NMSP, agree that more extensive testing is needed, but the money is just not available at this time.

Lopez adds that no official request for money has been made, to his knowledge, by Lapointe but that it was discussed "informally," and it is simply a question of finding the money.

According to Halas, sanctuary personnel have been kept busy trying to take care of several other unplanned events. For example, Halas says Congress has mandated the expansion of the sanctuary boundaries, but hasn't provided additional money necessary to do the study. Several recent boat groundings also have kept sanctuary personnel busy.

Halas says finding the manpower for the extra work is difficult. Personnel for the sanctuary, which at this time covers 100 square miles, consists of a manager, secretary, educational coordinator, four enforcement officers, two biologists, and a couple of mechanics for the six boats.

Algae — Green strands choke a sea fan in water off Key Largo.

U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

Washington, D.C. 20593-0001
Staff Symbol: G-CC/104
Phone: 366-4280

5730
JUN 20 1990

The Honorable Dennis M. Hertel
Chairman, Subcommittee on Oceanography and Great Lakes
Committe on Merchant Marine and Fisheries
House of Representatives
Washington, DC 20515

Dear Mr. Hertel:

The attached Questions and Answers for the Record of the House Committee on Merchant Marine and Fisheries, Subcommittee on Oceanography and Great Lakes are provided pursuant to the hearing on 10 May 1990, concerning the Florida Keys National Marine Sanctuary Act of 1990, per your request. All responses have been reviewed and approved, as required by the Department of Transportation and the Office of Management and Budget.

Please do not hesitate to call if I can provide further assistance.

Sincerely,

J. D. Hull
Captain, U. S. Coast Guard
Chief, Congressional Affairs Staff
By direction of the Commandant

Enclosure: (1) Qs and As for Congressman Hertel, 1-5

Copy: (1) Minority Staff Lawrence G. Flick

G-NSR
May 18, 1990

CONGRESSMAN DENNIS M. HERTEL QUESTIONS
WITH COAST GUARD ANSWERS: 01
FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990 HEARING:
05/10/90

QUESTION. WHAT IS THE TIMEFRAME FOR ACTION BY THE INTERNATIONAL MARITIME ORGANIZATION TO ACT ON YOUR PROPOSAL TO DESIGNATE THE AREA AS ONE TO BE AVOIDED BY COMMERCIAL TRAFFIC?

Answer. Our proposal, mailed to the International Maritime Organization (IMO) on April 22, 1990, will be considered by IMO's Subcommittee on Safety of Navigation (SUBNAV) at their September 1990 meeting in London. A Coast Guard delegation will be present to discuss the proposal. If approved by SUBNAV, the proposal will be forwarded to the Maritime Safety Committee (MSC) recommending adoption at MSC's May 1991 meeting. If adopted, the area to be avoided could be implemented six months later. The six month lapse is an IMO requirement to allow time for hydrographers worldwide to update charts to show the area when it becomes effective.

G-NSR
May 18, 1990

CONGRESSMAN DENNIS M. HERTEL QUESTIONS
WITH COAST GUARD ANSWERS: 02
FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990 HEARING:
05/10/90

QUESTION. WHAT IS THE DIFFERENCE BETWEEN YOUR PROPOSAL TO THE IMO AND HR 3719 IN THE TERMS OF PROTECTION FOR THE FLORIDA KEYS?

Answer. The intent of both our proposal and the bill is to protect the coral reefs off the Florida Keys from damage caused by pollution or impact as a result of vessel groundings. There are some key differences, however.

1. Our proposal is voluntary, relying on prudent mariners to observe an internationally sanctioned area to be avoided. The bill provides civil penalties and subjects violators to seizure and forfeiture. However, if accepted, the rules and standards associated with our proposal would be disseminated internationally by the IMO, thereby making it more likely that vessels will actually avoid the special area.
2. Our proposal is targeted to those vessels most likely to cause damage to the reef, i.e. vessels carrying oil and hazardous materials and all vessels over 50 meters in length. The bill applies to all vessels in the trade of carrying cargo or servicing offshore installations without regard to size.
3. Our proposal provides for continued essential local traffic through Hawk Channel as well as access to necessary anchorage areas near the Port of Key West. The sanctuary boundaries proposed in H.R. 3719 are very broad and do not address local needs.

G-NSR
May 18, 1990

CONGRESSMAN DENNIS M. HERTEL QUESTIONS
WITH COAST GUARD ANSWERS: 03
FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990 HEARING:
05/10/90

QUESTION. HOW WILL YOUR PROPOSAL TO THE IMO AND/OR THE PROTECTIONS IN HR 3719 AFFECT RECREATIONAL BOATERS?

Answer. Most recreational boaters will not be affected by the area to be avoided because the vast majority of recreational boats are smaller than 50 meters, and do not carry cargo or service offshore installations.

G-NSR
May 18, 1990

CONGRESSMAN DENNIS M. HERTEL QUESTIONS
WITH COAST GUARD ANSWERS: 04
FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990 HEARING:
05/10/90

QUESTION. WHAT IS THE COST AND VIABILITY OF IMPLEMENTING A VESSEL TRAFFIC SYSTEM (VTS) IN THE FLORIDA KEYS?

Answer. Vessel traffic services (VTSs) are designed for specific areas such as the approaches to major ports and harbors. The Florida Keys extend approximately 160 miles. It would be expensive to install a network of radar systems to monitor traffic in this entire area. Most VTS radar installations cover an area less than 20 miles. Furthermore, adoption of the area to be avoided will keep vessels over 50 meters in length five miles off the reef.

G-NSR
May 18, 1990

CONGRESSMAN DENNIS M. HERTEL QUESTIONS
WITH COAST GUARD ANSWERS: 05
FLORIDA KEYS NATIONAL MARINE SANCTUARY ACT OF 1990 HEARING:
05/10/90

QUESTION. HOW CAN YOU REGULATE SPECIAL TRAFFIC LANES TO PROTECT THE KEYS?

Answer. The Coast Guard is conducting a study to determine if other vessel routing measures, such as traffic separation schemes (TSSs), are needed off the Florida coasts. If routing measures are recommended by the study, domestic rulemaking will be initiated and a proposal submitted to IMO for international approval.

Reef Relief

A Private Non-Profit Conservation Organization dedicated to
"Preserve and Protect the Living Coral Reef of the Florida Keys"

May 30, 1990

Dennis M. Hertel, Chairman
Subcommittee on Oceanography & Great Lakes

Gerry E. Studds, Chairman
Subcommittee on Fisheries & the Environment

U.S. House of Representatives
Committee on Merchant Marine and Fishieries
Room 1334, Longworth House Office Building
Washington, D.C. 20515--6230

Dear Chairmen Hertel and Studds:

Thank you for the opportunity to offer testimony on H.R. 3719 the "Florida Keys Marine Sanctuary Act of 1990" and the additional opportunity to reply to additional concerns of the subcommittees.

Enclosed are my replies to the questions posed in your letter of May 15, 1990.

We are currently working with other members of the Coral Reef Coalition to present to you additional information addressing a re-write of the bill, which should reach you shortly.

Thank you for your leadership in this important legislation. Together, we can save the living coral reef.

Very truly yours,

Craig Quirolo
Executive Director

enclosure as per above

Mailing Address: 1223 Royal Street, Key West, Florida 33040
Environmental Education Center: 201 William Street, Key West, Florida 33040
Telephone (305) 294-3100 / FAX (305) 296-0609

REPLY OF CRAIG QUIROLO, REEF RELIEF TO SUBCOMITTEE QUERIES:

1. In your testimony you cite water quality degradation from septic tanks and fertilizer runoff as a major cause of reef damage. The National Marine Sanctuary program is limited to aquatic environments. How will designation prevent or control pollution from land-based sources?

The water quality problem in the Florida Keys is the result of the rapid growth that all of South Florida has experienced over the past fifteen years. Non-compliance to the Clean Waters Act by state and federal permitting agencies during the ongoing rapid build out in the Florida Keys has allowed this resort vacationland, visited by millions annually, to be destroyed. Yet our surroundings are the very thing on which the tourist industry relies.

The establishment of a National Marine Sanctuary should include in its provisions an ongoing water quality monitoring program throughout the designated area. With scientific evidence establishing the presence of pollutants harming the coral reef, more cound be done to eliminate their presence. The task of the Marine Sanctuary program should be to monitor and provide scientific data on water quality, and whether it is improving or deteriorating. It should be up to the agencies that are already establisheed to use the scientific data to determine how and where to begin the elimination process. No one agency will get a handle on saving the living coral reef of the Florida Keys. It is a task for virtually everyone.

Page Two, REPLY OF CRAIG QUIROLO, REEF RELIEF

Visitors to the living coral reefs should be provided with information on how they can do their part to save this beautiful resource. Residents can learn what they can do to reduce pollution to nearshore waters. EDUCATION plays an important part in saving the reefs. The marine sanctuary program provides excellent public educational programs which should be increased to all reef users throughout Monroe County.

2. Mr. Quirolo, you place little faith in the County Commission with regards to protection of the reef, yet a management plan should encompass as many concerns as possible. Is it possible for this to happen, or do you believe that any effort with the involvement of the county is futile?

The County Commission is just as much to blame for the water quality problem as are the state and federal permitting agencies that allowed the rapid buildout of the Florida Keys before basic infrastructure needs were established. Now sewage, solid waste, water and energy needs are inefficient, resulting in rapid water quality degradation. The County Commission has its hands full dealing with the land based pollution and should "do their part" by addressing those demands.

The County must come to grips with the fact that they will be spending nearly ten million dollars on attracting tourists to the Florida Keys and that somehow all those millions upon millions of visitors to the living coral reef must be managed.

Page Three. REPLY OF CRAIG QUIROLO, REEF RELIEF

With the population of the Keys almost doubling by the year 2000, there should be a limit on the amount of commercial reef traffic allowed. REEF RELIEF is already responding to many phone calls and gripes from private citizens that there mooring buoys are unavailable for use because they are all taken up by the commercial fleet.

The county will possibly act in harmony with the Sanctuary program as long as commercial fishermen do not lose their traditional fishing grounds. If the Marine Sanctuary program focused on the core zones of the reefs, implementing Sanctuary regulations there and allowing consumptive activities to take place elsewhere, the county might be more inclined to cooperate.

Until the county gets a handle on the land-based problems affecting the environment, they should not be expected to contribute much to the aquatic program. It is an unfortunate situation and the current county commission should not be held totally responsible for the lack of infrastructure as the Federal Corps of Engineers has aided by permitting much of the development.

3. How would the costs for your proposed county-wide educational safety program be met, given the budgetary concerns regarding the size of the proposed sanctuary?

Page Four. REPLY OF CRAIG QUIROLO, REEF RELIEF

If REEF RELIEF had the financial capability, we could initiate a study that would tell you exactly how much money is generated from the reefs near Key West. A head count would reveal that hundreds of thousands of persons visit the reef annually. I have already discussed the need for a limited entry program for commercial users of the reef as there is quite obviously a limit as to how many people can be swimming on the reef at any given time. There are days when well over one hundred persons are in the water at the same time.

To understand the amount of revenue generated by this resource and to weigh how very little is actually returned to the resource is to see a very huge inadequacy--the reef getting the short end of the stick. Limited commercial entry to reef users in the dive/snorkel/glassbottom boat business is a concept already talked about amongst the industry. There could be a sticker/license issued under a limited entry program with a substantial annual fee--$500.00 or so. There are virtually hundreds of boats commercially using the resource county-wide.

Another concept is the creation of a user fee--$1.00 per person for taking a commercial passage to the reef. This alone could generate over two million dollars a year. REEF RELIEF does not think it out of line to recover a small percentage of the gross generated from the resource if that money goes directly back into protecting and preserving the resource and there are existing sanctuary regulations which would permit such an arrangement. This would free the Florida Keys sanctuary from the Congressional budget wars which the sanctuaries face.

Page Five, REPLY OF CRAIG QUIROLO, REEF RELIEF

4. Would you be in favor of a compromise management plan with the tropical fish collectors which would create non-consumptive areas on the main reefs, while allowing collection on transitional reefs?

A zone management program would allow existing consumptive activities such as tropical fish collection to take place. We stress the importance of focusing on the core zones for strict regulations and monitoring the water quality of other areas within the sanctuary boundaries.

THE WILDERNESS SOCIETY

June 1, 1990

Hon. Dennis M. Hertel, Chairman
Subcommittee on Oceanography
and Great Lakes

Hon. Gerry E. Studds, Chairman
Subcommittee on Fisheries and
Wildlife Conservation and the
Environment

U.S. House of Representatives
Committee on Merchant Marine and Fisheries
Room 1334, Longworth House Office Building
Washington, DC 20515-5230

Dear Messrs. Chairmen:

Thank you for forwarding your additional questions on H.R. 3719, the "Florida Keys Marine Sanctuary Act of 1990", and for extending the hearing record to responses.

I will address your further questions as asked:

"1. Some witnesses have stated that HR 3719 does not go far enough in ensuring protection. How do you react to that claim?"

I concur with the observation.

I think it needs to go further physically, for one thing. I believe the Sanctuary designation should extend seaward to the limit of territorial jurisdiction, and that it should, at a minimum, additionally encompass all marine areas of Biscayne National Park, Fort Jefferson National Monument, and Key West, National Key Deer, and Great White Heron National Wildlife Refuges.

The measure should go further, too, in assuring protective standards and practices for administration of the Sanctuary's resources. To be an effective instrument in the state, federal and local effort to halt decline of the Key's marine environment, the measure should more comprehensively express the intention of the United States to help bring such a halt. It is nowhere

4203 PONCE DE LEON BOULEVARD, CORAL GABLES, FLORIDA 33146

clearer than in the Florida Keys, that successful protection of important natural resources requires the successful integration of action at all levels of government with conservation goals for the ecosystem.

Your best intentions would be recognized by requiring plans for the Sanctuary that reach and identify strongly relevant issues in its ecosystem; and then, by providing a means to assess and diminish the impact of the United States' own actions on sanctuary resources. I think the language of Section 7, of the Senate bill S. 2247, on comprehensive management planning, is an appropriate response to the first of those needs, and that of its Section 8, on federal program review, to the second.

Management of land use and water resources are areas where the states have broad and indispensable roles. Congress is properly deferential to their execution of them. Congress best aids state processes in resource protection where it describes federal objectives within federal boundaries and supports integration of those objectives in related decisions of state authorities. Where the Nation adopts a standard of long-term protection and sustainable use for a critical resource, like the marine environment of the Keys, it should measure its own actions against its goals for that resource in all ordinary cases, and limit its degradation of the resource in all cases but those of measured necessity. For those reasons we support amendment of your measure to include the language of Sections 7 and 8 of S.2247.

"2. Are you concerned with continued damage to the reefs from groundings by recreational boats? How do you propose we address recreational boaters?"

I am one of those recreational boaters, I frequently dive on the reef tract, I count those experiences among the true joys of living and working where I do, and I want them to continue. I want it a lot.

It's important enough in my life, that I feel obliged to learn all I can about the resource, to refine my skills and my gear so that I can use the reef without damage, and to stay out of circumstances that will harm me, others or the environment. Because the resource is important to the country, we ought to be doing something like that as a country.

I can assure you that there is "continued damage to the reef from groundings by recreational boats", and from their litter and other discharges. I see their tracks and junk on the reef and in the seagrass beds, my dive gear includes scissors for cutting clumps of monofilament from coral, and it would not surprise me to find that cumulative damage from recreational uses is greater than from ship groundings.

Protecting the resource from the myriad insults of thoughtless play is more complicated than protecting it from ship groundings. It means that education about its proper use and management has to be effectively extended to thousands of users, many pretty casual, and some pretty dumb. It means we must provide for active management of the resource, so as to reduce the likelihood of damage, through means like controlled mooring and passage, and by temporal and spatial "zoning" of uses. If good analysis supports good planning, it can come down to decisions that will durably protect the resource and its opportunities for recreation; decisions that will be understood and respected by users like me as preserving, not limiting, our opportunities to get the best from it.

We recommend the highly public and highly comprehensive planning process of S. 2247's Section 7 as the best way to reach such objectives. We must "address recreational boaters" on the basis of resource impacts, as we do any other users, and, as with others, reconcile their legitimate objectives to the prevention of harm. I think that damage from recreational use can be successfully avoided; there's no inherent need to damage natural resources to have fun in the marine environment. I think the public, including "recreational boaters" increasingly recognizes that, and does not oppose but seeks the support of public agencies in such management.

"3. Are you concerned that designation of a marine sanctuary may have unreasonable restrictions on recreational access or other compatible access"

The proposed Sanctuary area gets a lot of recreational use. Access to some of those uses is now being limited by degradation of the resource on which they are based. You can't catch a fish that isn't there, or get much kick out of diving on the bleached bones of once-living coral. Reasonable restrictions are those which permit uses compatible both with other human uses and with long term resource protection; unreasonable restrictions include those that foster baseless exclusions and those that fail of such protection.

I see nothing in the MPRSA or in any version of the pending bill to require unreasonable restrictions; I don't know of any impulse on the part of any public or private organization to limit access for the hell of it; I think an open, comprehensive planning process is the best defense against its unreasoned application; I think the establishment of effective sanctuary protection is needed if we and our children are going to have anything to have access to.

"4. Do you believe all commercial traffic should be banned from the area?"

No. H.R. 3719 has what amounts to a presumptive exclusion of vessels carrying cargo and servicing offshore installations, except in Coast Guard maintained channels and except where the Secretary makes an express regulatory determination to permit them. We think that is a reasonable limitation, and that if further limitations on such vessels or other commercial traffic prove necessary, they should arise from specific responses to specific problems, through the process of comprehensive management planning, and not through categorical restrictions by Congress.

Sincerely,

James D. Webb
Regional Director

TESTIMONY
OF
TIMOTHY R. E. KEENEY
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
NATIONAL OCEAN SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

BEFORE THE

SUBCOMMITTEE ON OCEANOGRAPHY AND THE GREAT LAKES
AND THE
SUBCOMMITTEE OF FISHERIES AND WILDLIFE CONSERVATION
AND THE ENVIRONMENT
COMMITTEE ON MERCHANT MARINE AND FISHERIES

U.S. HOUSE OF REPRESENTATIVES

MAY 10, 1990

re: H.R. 3719

Mr. Chairman and Members of the Subcommittees:

I am Tim Keeney, Director of the Office of Ocean and Coastal Resource Management (OCRM), National Oceanic and Atmospheric Administration's (NOAA), U.S. Department of Commerce. I am accompanied by Joseph Uravitch, Chief of OCRM's Marine and Estuarine Management Division.

I am pleased to be here today to relay to the Subcommittees the Administration's support for efforts to further the protection and management of the coral reefs off the Florida Keys; and to provide Department of Commerce views on H.R. 3719, the "Florida Keys National Marine Sanctuary Act of 1989". I want to clearly state at the outset that the Administration opposes Congressional intervention into the marine sanctuary designation process. The current process of nomination, evaluation and designation works well and ensures that all points of view are considered. However, because Congress initiated the designation

process for the Florida Keys when it passed the 1988 Amendments of the Marine Protection, Research, and Sanctuaries Act (MPRSA) and the initial results of NOAA's area studies support designation, we do not oppose this particular intervention. We do oppose, however, any future Congressional intervention in the designation process.

President Bush recently expressed how important he believed it was to protect these reefs. While in the Florida Keys for Earth Day last month, he said, "The Florida coral reefs are one of the most diverse ecosystems in the world and a unique national treasure. Protecting the reefs from damage, both from vessel groundings and pollution, is imperative." He also recognized the efforts of a local group of volunteers, Reef Relief, to protect the reefs from anchor damage with his 123rd Daily Point of Light Award.

The Department of Commerce wishes to provide recommendations to Congressman Dante Fascell's bill, H.R. 3719, that we believe may enhance the protection currently provided by the bill, as well as clarify its relationship to the National Marine Sanctuary Program. We understand that the bill is undergoing revision to coincide with legislation (S. 2247) introduced by Senator Bob Graham of Florida, and to respond to public comments obtained earlier this year.

Following the groundings of three large commercial vessels off the Florida Keys in late 1989, and the resulting public

outcry, H.R. 3719 was introduced as a means of addressing the threat of such vessels running aground on the fragile coral reefs. The bill would restrict certain commercial vessel traffic in waters off the Florida Keys out to the 300-foot isobath and authorize penalties, including vessel seizure and forfeiture, for violations. Nothing can guarantee that a large vessel will not run aground again, but the effect of this bill in deterring future groundings will be significant. Vessel crews will exercise more care in transiting the area and owners will be more diligent in assuring the mechanical condition of their vessels and the competence of their crews.

A provision of H.R. 3719 requires the Secretary of Transportation to submit a proposal to the International Maritime Organization to establish an Area To Be Avoided (ATBA) in the Florida Keys. NOAA has been closely involved with and fully supports the ongoing efforts of the United States Coast Guard in developing an ATBA proposal to reduce the navigational hazards of the shallow coral reefs to commercial shipping and other classes of vessels.

NOAA concurs with the recognition of the unique nature of the marine environments adjacent to the Florida Keys, as stated in the bill's findings. The Florida Keys and their surrounding waters form an extremely sensitive and valuable marine ecosystem. The coral reef ecosystem is a complex ecological network encompassing several closely interrelated terrestrial and aquatic

habitats. The coral reefs are the most well-known of these habitats and are vitally important to the economy of the area. The Florida Reef Tract is the third largest barrier reef system in the world and is unique in the coastal waters of the United States. The rocky appearance of the slow-growing corals disguises their surprisingly fragile nature. They thrive within a very narrow range of environmental conditions and can be easily damaged by physical impacts, as was demonstrated last year.

H.R. 3719 is a first step to deal with the hazards to the Florida Keys posed by commercial vessel traffic, particularly the larger ships that have the potential for disastrous environmental impacts. To be more effective, the bill should take advantage of the comprehensive approach to the conservation and management of special areas of the marine environment found in Titlo III of the MPRSA. The sanctuary designation standards and procedures found in the MPRSA should be incorporated to ensure that this distinctive area will be protected for continued long-term compatible human uses. This would ensure that the "unified Florida Keys National Marine Sanctuary" would represent a true National Marine Sanctuary, as defined by the MPRSA.

The comprehensive management provisions of the MPRSA would allow H.R. 3719 to go beyond large vessel groundings and address some of the multitude of resource management issues facing the Florida Keys. Human activities on the reef, such as chronic overuse, conflicts between different types of users, and

incompatible activities, also are having a deleterious effect on the coral reef environment. NOAA shares the concerns voiced by members of the public and numerous groups, whose calls for additional protections inspired this legislation. In order to address these concerns, a more comprehensive approach to the protection and management of the Florida Keys on the part of governmental and private bodies is required. Unfortunately, although management agencies are recognizing the need for coordinated action to achieve improved resource protection, no single authority exists to prescribe the balance between conservation and human use for onshore and offshore activities. While the sanctuary program alone cannot resolve all the resource management problems facing the Florida Keys, it could provide a large measure of added protection for the marine resources and complement state and local efforts.

This additional protection would not be based solely on regulation and enforcement, but rather would incorporate management measures, such as mooring buoys that would allow users to visit the reefs without the risk of damage from anchoring, education to encourage wise use of the marine environment, and research to monitor resource quality and predict the effects of continued use. NOAA has many years of experience in the successful management of marine protected areas in the Florida Keys. The existing Key Largo and Looe Key National Marine Sanctuaries have demonstrated the ecological and commercial benefits of preserving these areas for future generations.

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Public perception of and appreciation for national marine sanctuaries has never been higher. The multiple-use approach of the National Marine Sanctuary Program has been the key to ensuring resource protection while maintaining public enjoyment and use. In Florida, NOAA has developed close links with user groups, such as the dive industry, to encourage resource protection both inside and outside the boundaries of the two existing sanctuaries. The efforts of Reef Relief to protect the reef from anchor damage, which President Bush lauded last month, were based on technology developed and tested in the sanctuaries. NOAA is proud to aid groups like Reef Relief in their efforts to protect the marine environment. We have provided training and technical assistance in mooring buoy programs, research and educational efforts, onsite operations and many other aspects of sanctuary management to numerous countries seeking to establish protected areas to preserve their marine resources.

Under the 1988 amendments to the MPRSA, NOAA was instructed to study three areas in the Florida Keys and determine whether they were appropriate for designation as national marine sanctuaries. They are:

- the area from American Shoal to the Marquesas Keys;
- the area around Sombrero Key; and
- the area between Alligator Reef and the Key Largo National Marine Sanctuary.

As part of its study mandate, NOAA has been reviewing a wide variety of resource protection issues. Preliminary field surveys were carried out during the summer of 1989. Initial indications are that the resources in these areas would qualify for sanctuary status and that management as a marine sanctuary would provide improved resource protection. Further efforts related to the site studies were delayed by the vessel groundings that prompted H.R. 3719. These efforts were to include distribution of a public participation package and follow-up workshops to gather additional information on the natural resources, human uses and level of impacts in the study areas.

The area identified under H.R. 3719 is substantially larger than the study sites, yet based on habitats present and existing uses NOAA believes that this larger area would also qualify for sanctuary status and would benefit from management as a marine sanctuary through improved resource protection. In this respect, the concept of a unified Florida Keys National Marine Sanctuary presented in H.R. 3719 has merit for the protection of all offshore resources, but only if it includes the management provisions authorized under the MPRSA, such as the development of a comprehensive management plan. Therefore, we would support efforts to revise the bill to allow the designation of the proposed area as a sanctuary and giving the Secretary of Commerce the authority to promulgate regulations consistent with his authority to regulate and manage national marine sanctuaries. This would substantially simplify and reduce the sanctuary

designation process. Shortening the designation process in this manner would not circumvent the spirit of public involvement in the process articulated in the MPRSA. This would include public hearings and numerous opportunities for public input. Under the National Environmental Policy Act and the Administrative Procedures Act, NOAA would still be required to conduct environmental analyses, publish draft regulations and seek public comments.

Regarding the area proposed for designation under H.R. 3719, NOAA concurs with the 300-foot isobath extent of the boundary. This provides a sufficient buffer from vessel traffic to protect the reefs without creating undue navigational restrictions, or new hazards to shipping. NOAA recommends that the westernmost boundary of the area be Rebecca Shoal to eliminate any overlap with an existing protected area, Fort Jefferson National Monument. We also recommend that the sanctuary boundary be defined on the Gulf of Mexico side of the Florida Keys by following the Coast Guard's ATBA boundary back to Key West and then using U.S. Route 1 as the landward boundary. Additional consideration should be given to expanding the jurisdiction of the Department of the Interior by extending the boundaries of Biscayne National Park to the 300-foot isobath. We note that it would be preferable to designate boundaries by latitude and longitude.

In conclusion, we believe that the coral reefs off the Florida Keys merit the additional protection that Congressman Fascell's bill would provide, as well as added benefits under full national marine sanctuary status. The Administration is committed to the conservation and sound effective management of this valuable area in conjunction with state and local governments. We look forward to reviewing the revised bill and working with the Subcommittees in ensuring the preservation of one of our Nation's most unique treasures.

This concludes my prepared statement. I will be glad to answer any questions you may have.